The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXIII, No. 24 CHICAGO, ILLINOIS DECEMBER 12, 1914

THE RELATION OF THE MEDICAL SCIENCES TO CLINICAL MEDICINE *

FREDERIC S. LEE, PH.D.

Dalton Professor of Physiology, Columbia University

NEW YORK

In the medical curriculum there has come to exist a distinction between the medical sciences and the clinical subjects. At the middle of the course of four years there is a more or less sharp break — the student drops his science, the pursuit of which he has sometimes looked on as a burdensome, if not superfluous, experience, and turns abruptly to what he is often inclined to regard as the real thing in his preparation for professional work. Even the medical practitioner sometimes assumes a similar attitude toward the two groups of studies, and teachers of clinical medicine have not always been free from the encouragement of such a notion. That such an idea is wrong goes without saying, for it receives no sympathy from the best minds of the medical profession. Yet this arrangement of studies has not always existed; the present medical curriculum, which in its main features is essentially the same the world over, is a product of evolution, and one of the striking incidents of its recent history is the prominence that has been acquired by the medical sciences. It may be helpful to look into the rise of these sciences in some detail.

EVOLUTION OF THE MEDICAL SCIENCES

Anatomy is the original and it still remains the traditional medical science. For centuries religious and social prejudices against the dissection of the human body confined anatomic study largely to the lower animals; nevertheless, even in the days of the Alexandrians, three hundred years before Christ, students of medicine probably had opportunities to witness frequent human dissections by Herophilus and Erasistratus and their followers. Later human dissection fell into disrepute and then revived, and by the fourteenth or the fifteenth century it became a part of the routine of medical instruction at the leading European universities. It received a new impetus from the great anatomists of the sixteenth century, led by Vesalius, but even then the students had little anatomic opportunities except to look on at demonstrations by the leaders or, more commonly, by the barbers or surgeons who actually handled the organs and tissues. It was not until the eighteenth century that the use of the scalpel by the student himself became at all common; and from that time until almost the present day the dissecting-room has been regarded as the student's proper abiding place during all his hours outside the lecture or clinic. It is obvious — and to no one more than the anatomist himself — that the gross structure of the human body presents a limited field of study for both the investigator and the undergraduate. In the last fifty years it has been supplemented and illumined by the study of microscopic structure, of embryologic development, and of genetic relationship, and has thus become broader and more helpful than before. But even with these additions, anatomy does not now occupy, and can never hope to regain, its former unique position as the one medical science deserving a separate place in the medical curriculum. Anatomists are entitled to great credit for having impressed on medicine the importance of their science during all the centuries; it helped to raise medical art above the degrading empiricism and speculation with which it was beset; it long kept alive the scientific spirit; and if its preeminence in medical study is now lessened this change must be ascribed, not to the fault of anatomy or anatomists, but largely to the general scientific renaissance through which we are passing.

Physiology, like anatomy, is one of the classical medical sciences. It is of prehistoric origin, for doubtless men always interested themselves in the working of their own bodies. At the time of the height of Grecian culture and of Alexandrian wisdom it had risen to an honorable place among the departments of human knowledge. Five hundred years later it was enriched by the labors of the immortal Galen. Through the middle ages it slumbered. In the sixteenth century it received an undying impulse from William Harvey and his discovery of the circulation of the blood, and from that time to the present it has had an unbroken advance, more rapid with each succeeding decade. During the century that has just closed, along with the passing of the doctrine of vitalism and the rise of the conception of the conservation of energy in physics and that of oxidation in chemistry, physiology has developed along two main lines and has come to be known as the science of the physics and chemistry of living matter; and as the content of the science augments, these two lines, although possessing a common aim, are forced by their different points of view and their different technical methods to diverge from one another. As a matter of medical education physiology had no separate status of its own until the eighteenth century. It was taught as an integral part of anatomy, the function of a part being naturally considered in connection with its structure. In the eighteenth century physiology came to be recognized as deserving of specific mention in the medical curriculum, but it

* Address delivered at the opening of the session of 1914-1915 of the Columbia University College of Physicians and Surgeons.

was still united with other subjects, the choice of its companion apparently being determined by local circumstances. When the first medical school of Kings College, the forerunner of Columbia, was established in 1767, physiology and pathology together constituted one chair. The first physiologic laboratory was established at Breslau in 1839. The subject was first taught by means of lectures exclusively, but during the nineteenth century demonstrations gradually crept in. In this country the demonstrative teaching of Dalton, who came to the College of Physicians and Surgeons in 1854 fresh from the inspiring laboratory of Claude Bernard, created much enthusiasm and inaugurated a new era for American students of medicine. It is within a period of only about twenty-five years that laboratories of physical and chemical physiology for the general body of students have become common, and undergraduate students at last after all the centuries of growth of the science have been given the privilege of learning it. In Europe physiologic laboratories are not so well equipped for instruction as they are in this country, and it may truthfully be said that few medical practitioners in any country who have passed the age of fifty have had adequate opportunities to learn the methods of this science, to them most indispensable, or to steep themselves in its spirit.

Although many individual diseases were well known to the ancients, pathology, the science of diseases, was necessarily largely a matter of theorizing until after the beginning of the revival of learning. By the sixteenth century those who dissected the human body began to be interested in the finding of abnormalities in the organs. This became gradually more and more common, and a mass of pathologic knowledge slowly accumulated; but it can hardly be said to have been organized for two hundred years and until the Italian, Morgagni, published in 1761 his remarkable five books on "The Seats and Causes of Disease as Investigated by Anatomy." There for the first time with any degree of completeness gross anatomic lesions were considered in relation to the clinical records of the diseases, and the science of pathologic anatomy may be said to have been born. It required still another hundred years before the cell conception was introduced into pathology by the great Virchow. Physiologic, or experimental, pathology was even slower in coming into being, for it could not well appear before normal function had become known. As with physiology so in pathology all teaching was at first didactic; later necropsies were employed for instruction; then the microscope was brought in for demonstrating the changes produced by disease in tissues; but not till about thirty years ago did undergraduate medical students have an opportunity themselves to prepare microscopic sections and examine them in the laboratory. The receiving of formal instruction in experimental pathology is still the privilege of the favored few.

Drugs have been used for therapeutic purposes from the earliest times, and the history of drug treatment is perhaps the strangest in all medicine. Here we see crude empiricism at its very worst. Although the ancients used many drugs intelligently the materia medica of the time of Queen Elizabeth contained, among remedies which may still be rationally used to-day, such monstrosities as cast-off snake's skin, dried vipers, foxes' lungs, spiders' webs, a plaster "compounded of viper's flesh, with live frogs and worms," oil of ants, oil of spiders and earthworms, "oil of puppies boiled with earthworms," cat ointment, and "moss from the skull of a victim of violent death." During the seventeenth and eighteenth centuries medical schools attempted some improvement by establishing botanical gardens to which students were expected to resort in order to study growing medicinal herbs, a strategy for inducing mental exercise which does not seem to have appealed strongly to the student mind. Pharmacology, however, the exact science of the physiologic action of drugs, did not appear until the nineteenth century when Magendie, the French physiologist, showed its possibilities. Its first laboratory was opened in Dorpat in 1856. Young as it is as a science, it is still fighting its way for independent laboratories and an adequate place in the medical curriculum.

But the youngest of all the medical sciences is bacteriology, and it has had the most rapidly brilliant career. All the world knows that its founders were Louis Pasteur and Robert Koch, and that less than half a century has passed since they began their epoch-making studies of the relation of micro-organisms to human diseases. It is since then that the most of the known species of bacteria have been discovered, and, what is of the greatest importance medically, the mutual physiologic relations of bacteria and their living hosts have become in a considerable degree elucidated. A knowledge of these physiologic relations has given us serums and vaccines and their therapy, and the whole fabric of immunity. As rapid as has been its growth, almost as quickly has bacteriology won its place in the medical curriculum, and it is the poor school now that does not possess a laboratory in which undergraduate students may personally experiment with disease germs.

From this brief glance at the evolution of the medical sciences we see that, with the exception of anatomy, they all have taken their places as separate branches of medical study during a period comprising even less than one hundred years. As time passes, therefore, their position within medical schools has been achieved only very recently. Moreover, the sciences that have thus come quickly into being as factors in medical education are chiefly those that have to do with function rather more than with structure — they are physiologic rather than morphologic sciences. Hence they are sciences that progress by means of experiment rather than by simple observation. In detail they include physiology itself, physiologic and pathologic chemistry, physiologic pathology, pharmacology and the greater part of bacteriology. This fact of the great inroad into medical education of these physiologic sciences is, I venture to think, a very remarkable and significant fact; for it indicates that they are of vital importance to the practitioner of medicine. Their influence is threefold: In the first place, they supply the future practitioner with a vast mass of systematized knowledge of the ways in which the complex human body performs its work, physical and chemical work, both in health and in disease; they show how this work may be modified by drugs and other remedial measures; they show how perturbations of bodily functions may be prevented and how normal function, when once disturbed, may be restored. In other words, they give to the future practitioner the basis for his technical procedures and teach him the reasons therefor. Moreover, they show him how this

knowledge has been obtained, where it is still incomplete, and the ways in which it may be added to. In the second place — and this is of equal if not greater importance — they reveal to the future practitioner the nature of the scientific method; they show him how many of the best of the world's minds have proceeded when confronted by the problems of nature, how they have analyzed and clarified these problems, how they have devised experimental methods for the purpose of investigating them, and how they have solved them. They teach him the nature of causation, the necessity of finding causes if natural phenomena are to be understood, and the fallacy of the idea, which is far too prevalent in medicine, that that which precedes is necessarily the cause of that which follows: that, for example, when a certain drug is given and a cure follows, the cure is necessarily due to the drug — *post hoc, ergo propter hoc*. They show the importance of exactness in all scientific work and how as the medical sciences have advanced they have become constantly more exact. Moreover, they show that the problems of the practitioner are simply problems of Nature — the problems of the bedside are the same in kind as the problems of the laboratory, and they demand for their solution the attitude of the man of science. In the third place, if instruction in the medical sciences is what it should be, it imbues the student with a love for science and the scientific method; it fills him with the scientific spirit, without which no follower of medicine can attain the best.

CLINICAL MEDICINE

Now let us turn from the consideration of the sciences to that great body of knowledge which constitutes modern clinical or practical medicine. It is a wonderful achievement of man. It represents the efforts of countless human minds, each working during his brief generation, while the whole is the product of the restless labor of centuries. It has had a manifold origin — individual experience, philosophical theory, speculation that cannot lay claim to the title "philosophical," and occasionally chance and accident have all contributed their share, and through it all but rising into commanding prominence in modern times there can be found the desire to discover causes, to connect causes and effects, to control effects by influencing their causes, and to substitute rationalism for authority — and this is the essence of science. If the history of medicine is to be summarized, it may be conceived as a constant conflict between empiricism and speculation on the one hand and science or something that corresponds to science on the other. Each side has had its victories and its defeats; each has had its periods of ascendency and its periods of decline; neither side has been wholly wrong; medicine at all times has been a mixture of the two; nevertheless the scientific conception and the scientific method have gradually won their way, they have demonstrated their merit, and they are bound to prevail in the end.

A striking chapter from the history of this conflict is illustrated by the course of medicine in Germany during the past century. In the first half of the century it fell on evil ways and descended to a low level. In 1854 — only sixty years ago — the clear-sighted Virchow wrote:

> German medicine on account of its views and dissenting "schools" has become the laughing stock of the world.

Oertel has graphically described the situation of the time. He says:

> There did not exist a well-founded universal scientific method of thought, investigation or teaching, but only opposed and battling "schools" and "systems" of medicine and therapy, such as homeopathy of Hahnemann, polypragmasia, Rademacher's system, Priessnitz's system, therapeutic nihilism, eclecticism, Bouillaud's bleeding to unconsciousness of the patient, Dietl's absolute condemnation of bleeding as a criminal offense (1849), Mesmerism and others. They formed the source of endless and senseless discussions, for they were all speculative and contributed much to the entertainment of their pompous defenders and the laity but not to the benefit of their patients. . . . It was not even a time of crude empiricism, but a fantastic period which, like a nightmare in individuals, occasionally arises during the life of a nation.

And yet Germany was then on the threshold of a great reform, for the medical sciences — pathologic anatomy, pathologic histology, physiology and pharmacology — were beginning to show to clinical medicine the pathway to higher things, and it was not many years before Germany had become the world's medical leader. But notwithstanding the triumphs of science the constituent parts of the great mass of modern medical knowledge are still of very unequal value; empiricism and speculation have not yet ceased to be; they are still the bane of medicine, and it is still necessary to contend against them.

As with everything that is of ancient origin, so in clinical medicine tradition is very potent. It is surprising to see to what an extent modern medical theories and practices come from the ancients and presumably therefore are purely speculative or empiric in their beginnings. This does not mean that they are therefore necessarily wrong, but their early ancestry always arouses suspicions in these days when science is smashing tradition right and left. Thus the fantastic doctrine of the humors, the beginnings of which seem to antedate all historical writings, still existed at the beginning of the nineteenth century. The pernicious fashion of blood-letting was practiced not only by Hippocrates four hundred years before Christ, but by the disciples of Hippocrates twenty-two hundred years after his death. The old treatment of pneumonia still persists, and from 20 to 40 per cent. of the patients still die. Quinin was used successfully for malaria by the Spanish invaders of South America in 1638 — an excellent example of the empiric introduction of an invaluable drug, the use of which medical science has now shown to be justified by its specific action on the malarial organism. A well-known American neurologist tells me that he frequently uses one of Galen's prescriptions and finds it very helpful. The celebrated Papyrus Ebers is said to record the fact that arsenic was used in the treatment of cancer even in ancient Egyptian times. The practice of greatly restricting the diet in patients suffering from acute febrile diseases was advocated and used by the "Father of Medicine," and is still practiced extensively, although the careful scientific work of Coleman now shows that it is to the disadvantage of the patient. The achievements of bacteriology have destroyed at once long-held and cherished traditions regarding the course, treatment and prevention of infectious diseases, and have enabled surgery to pass from an ancient to a modern art. Recent advances in our knowledge of the physiology of nutrition bid fair to place the traditionary topic of dietary treatment at last

on a rational basis. With very many of the customary usages of present-day medicine it would probably be extremely difficult, if not impossible, to search out their origin, but every doctor who employs them should at least be able to justify their continued employment. One of the dangers to which students are exposed is that of learning the methods of their instructors without the reasons therefor and blindly carrying over the same methods into their own practice. This procedure, which may be called learning by inheritance, while implying a gratifying degree of respect on the part of the student for his professor, is not to be recommended, for while it may make a ready man, it does not make a full one. All young practitioners are subjected to this danger, often during their hospital service, and especially while serving on the staffs of the dispensaries. They there find that particular lines of treatment have, it may be, been long in use, certain prescriptions have become hallowed by age. It is not always easy to obtain and still less easy to remember their formulas, and to question their reason or practicability is not expected. The path of least resistance is to accept them, and this the younger doctor proceeds to do. What dispensary physician has not prescribed, without further thought of their constituents or physiologic actions, "Loomis' tonic," "tonic No. 6," "whooping-cough mixture No. 4," "epilepsy mixture," "Lockwood's sedative," "Pill Janeway," or their equivalents? Such a practice becomes too often mere mechanical routine, detrimental to the future growth of the scientific physician. I have heard it related of the great French physiologist, Magendie, that he was once demonstrating to some of his colleagues a new fact which he had discovered. His friends were skeptical of its validity and remarked that it could not be true because it was contrary to "the law of the membranes" — whatever that may be. To which the courageous savant replied that he knew no law of the membranes, but that there before them was the demonstrated fact. Adherence to tradition is right when tradition can justify itself, but a wholesome and well-balanced skepticism as to traditional medicine is the only safe and sure attitude of mind for the physician who would be progressive.

It is customary in these present days of great medical achievements to dwell on these achievements and to congratulate ourselves on what we have been able to accomplish. This is justified. Medical advance has indeed been marvelous; both medical science and clinical medicine are daily making magnificent conquests, and for this success no one has a greater admiration than I. But while in the face of such success self-congratulation is permissible to us, self-complacency, I submit, is not, for it cannot be denied that medicine has glaring deficiencies. It is of some of these that I wish, with your permission, now to speak—although in no pessimistic spirit. Consider the matter of diagnosis. Dr. Richard Cabot[1] has recently made a very frank and courageous, but very significant comparison, in the cases of three thousand patients who have died at the Massachusetts General Hospital, of the pathologic conditions actually found at necropsy and the diagnoses made during life from the clinical findings. He found the percentage of mistaken diagnoses to be as in the accompanying tabulation:

PERCENTAGE OF MISTAKEN DIAGNOSES FOUND BY CABOT

Acute nephritis	84	Phthisis, active	41
Acute pericarditis	80	Aortic stenosis	39
Hepatic abscess	80	Septic meningitis	36
Chronic myocarditis	78	Brain hemorrhage	33
Vertebral tuberculosis	77	Mitral stenosis	31
Bronchopneumonia	67	Gastric cancer	28
Renal tuberculosis	66.7	Tuberculous meningitis	28
Suppurative nephritis	65	Cerebral tumor	27.2
Peptic ulcer	64	Chronic glomerulonephritis	26
Acute endocarditis	61	Lobar pneumonia	26
Hepatic cirrhosis	61	Cancer of colon	26
Thoracic aneurysm	50	Aortic regurgitation	16
Chronic interstitial nephritis	50	Typhoid fever	8
Miliary tuberculosis	48	Diabetes mellitus	5

The average of mistaken diagnoses in these twenty-eight diseases is 46.5 per cent., or nearly one-half, and this in one of the leading hospitals of the country, where all available aids to correct diagnosis ought to be had! Dr. Cabot says: "The study of the details in these cases before and after death convinces me that, for the present and under the present limitations of diagnostic method, few of the mistakes tabulated above could have been avoided. . . . They mirror the methods of an average up-to-date hospital." Professor Orth, director of the Pathological Institute in Berlin, is said to have made the statement that "of all appendixes that have been submitted to him for examination by conservative surgeons with the clinical diagnosis of appendicitis, as many as 17 per cent. showed no disease." Dr. Starr tells me that the diagnosis of the location of brain tumors is a matter of probability, not of certainty, in 40 per cent. of the cases. We can easily identify a disease in a dead man, but what is needed is more accurate methods of finding it in the living one.

Does treatment afford us a greater cause for self-congratulation? In 1909 of the 732,538 deaths which occurred in the registration area of the Unted States, 90,868 resulted from pneumonia and other diseases of the respiratory organs; 90,456 from diseases of the circulatory organs; 81,720 from tuberculosis; 66,803 from nervous diseases; 48,430 from nephritis; 44,648 from diarrhea in infants; 38,020 from cancer and other tumors; 10,722 from typhoid fever, and 10,358 from diphtheria. Moreover, during the ten years from 1900 to 1910 there was a large increase within the registration states in the death-rate from certain forms of disease: diseases of the arteries, 396 per cent.; diabetes, 60 per cent.; organic diseases of the heart, 39 per cent.; cancer, 30 per cent.; nephritis, 18 per cent.; cerebral hemorrhage, 18 per cent., and cirrhosis of the liver, 14 per cent. When we realize that the registration area of the United States covers a comparatively small portion of the inhabited world's surface, we can form some notion of the huge army of the world's people who die each year from diseases for which there ought to be remedies. And the pronounced increase in the number of victims of some of these maladies reveals that medicine is not advancing as rapidly as are certain destructive agencies.

Sir William Osler's optimism in all things medical is pronounced, and hence it is the more interesting to read his words of prognosis. He says: Of typhoid fever: "Of the 1,500 cases treated in my wards, 9.1 per cent. died." Of pneumonia: It "is one of the most fatal of all acute diseases, killing more than diphtheria, and outranking even consumption as a cause of death." Of bronchopneumonia: "The death-rate in children under five has been variously estimated at from 30 to 50 per cent." Small-pox "in

1. Cabot, R. C.: Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies, The Journal A. M. A., Dec. 28, 1912, p. 2295.

unprotected persons . . . is a very fatal disease, the death-rate ranging from 25 to 35 per cent." Of diabetes mellitus: "Personally I have not known an instance of recovery in a child." Of cirrhosis of the liver: "The outlook is bad." Of chronic Bright's disease: "The prognosis is extremely grave. . . . It is an incurable affection." Of pernicious anemia: "The ultimate prognosis in a great majority of cases is bad." Of leukemia: "Recovery . . . is practically unknown." Of diseases of the myocardium: "The outlook in affections . . . occurring late in life is extremely grave." Of aneurysm: "The outlook in thoracic aneurysm is always grave . . . in abdominal aneurysm is bad." Of Addison's disease: "The disease is usually fatal." Of the prognosis in epilepsy Osler frankly confesses: "This may be given to-day in the words of Hippocrates: 'The prognosis in epilepsy is unfavorable when the disease is congenital, and when it endures to manhood, and when it occurs in a grown person without any previous cause. . . . The cure may be attempted in young persons, but not in old.'"

THE SCIENTIFIC AND THE PRACTICAL

From what I have said it is, I trust, sufficiently obvious that notwithstanding the high character of clinical medicine in many of its aspects and the great advances which it is making in many of its divisions, there is still everywhere imperfection, and serious imperfection, to be eliminated. Medicine is still very far from its ideal, which, I take it, is to maintain the individual in health, in other words in a physiologic state, if possible; and if he has lapsed from that state, to restore him to it. How can such an ideal best be attained? Two things are here needed.

In the first place, there must be a greater development of the medical sciences. "Medicine," says Dr. Victor C. Vaughan, the accomplished President of the American Medical Association, "consists of the application of scientific discovery to the prevention and cure of disease. All else which may go under the name of medicine is sham and fraud." The medical sciences have already accumulated a huge mass of material which is at the service of those who would utilize it in the treatment of disease. And yet there is still pioneer scientific work to be done everywhere. The more one labors to unravel the mysteries of the human body, the more intricate it seems to be; the farther one penetrates, the more one sees of unsolved problems. In the present stage of the evolution of the medical sciences the chief labor must be performed by the aid of experimentation, and here physiology, physical and chemical, must lead the way. The establishment of hospitals for the care of the sick and even for clinical research, the giving of large sums of money for the investigation of specific diseases, while having a certain value to the human race in the immediate saving of imperiled human lives, do not provide, I believe, the most direct path to the desired goal. The endowment of physiologic research, the dedication of a host of bright minds to the unraveling of the intricacies of the living mechanism, the learning of the ways in which the mechanism acts in health — herein, and herein chiefly, lies the secret of rapid, comprehensive medical advance. When once we know the normal activities of the body — and often while learning these — we can the more quickly discover the abnormal activities, and then the way to bring the diseased body back to the normal will soon be devised.

In the second place, in order to attain its ideal more completely, clinical medicine must be more fully saturated with a knowledge of the medical sciences, with scientific method and with the scientific spirit. The clinician must know more of what the physiologist, the pathologist, the pharmacologist and the bacteriologist are doing. Their discoveries are vital to him. Moreover, he must have so acquired the scientific habit of looking at the problems of nature that instinctively, when confronted by a case of disease, he will attack it, not as a matter of routine, not as he may have attacked a hundred other cases of the same disease before, for no two cases are wholly alike—nature never copies her works of art exactly—but as the man of science attacks one of his laboratory problems, with the critical, analytic spirit of the investigator, eager to find new facts and new points of view, eager to discover causes and relate them to effects. The problems of clinical medicine differ from the problems of the laboratory in this important respect: namely, that, while in the laboratory the investigator can establish the conditions under which he is to study, at the bedside the conditions are already established for him and he who is to officiate there must accept them. This makes his problem all the more difficult of solution.

Moreover, the practitioner in his professional capacity rarely has an opportunity to see the complex living mechanism with which he has to deal, in its normal state. When it is brought to him it is out of order, something has gone wrong, and the balance is upset. This may complicate the matter still more, for while it may be obvious that some of the parts are not behaving properly, it may not be so evident where the primary seat of the trouble lies. The practitioner cannot take the mechanism apart, as can the laboratory worker, but must necessarily deal with symptoms, and here is one of his dangerous pitfalls. For one who has learned the conventional clinical routine it is easy enough to prescribe for symptoms; but prescribing for symptoms alone is the resource of the ignorant and the inert. In current discussions of diseases we often hear that learned and awe-inspiring word, "syndrome," which is full of mystery to the uninitiated. A syndrome means a certain group of symptoms which are found to occur together. They may be related obviously or they may involve widely diverse organs. While the word is used in different fields of medicine it has become especially prominent in neurology, which already recognizes more than fifty different symptom complexes. Syndrome is a convenient word, but there is a real danger in its use, and this lies in regarding it as a finality. The symptoms, or the group of symptoms, is nothing if one cannot go deeper and find the anatomic and physiologic conditions which underlie the obvious signs. "Many neurologists think," says Dr. Tilney, "that when they have got down to a mass of symptoms, they have got to the end. Really they haven't begun. They are looking through the wrong end of the telescope." The excellent analytic work of Dejerine and von Monakow — and not to go to a greater distance from home — in our own laboratories and clinics the work of Professors Pike and Tilney indicate the advantages of placing clinical neurology on an exact anatomic and physiologic basis.

But it is not in nervous diseases alone that critical analysis must be carried beyond the symptoms to the underlying focus of the disease. One of the leading orthopedists of America told me a few days ago of a severe case of arthritis which he had recently had in his practice. The patient had been bedridden for several months, unable to move, except with difficulty and much pain. The inflamed and stiffened state of the joints was obvious and seemed to call for local treatment. The physician, however, caused a thorough chemical and physical examination of the patient to be made, during which a roentgenogram revealed the presence of unsuspected local abscesses at the roots of several of the teeth. The removal of these affected teeth resulted in the prompt recovery of the patient from his joint disease. In the opinion of this physician every orthopedist ought to have at his command a competent physiologic chemist with a well-equipped laboratory.

Prof. J. Whitridge Williams, of Johns Hopkins University, in a recent address as president of the American Gynecological Society, severely criticized the members of that society for not taking a more prominent part in the advancement of obstetric knowledge, and he added that universities ought to equip and maintain women's clinics "liberally provided with laboratories for the anatomical, chemical, pathological and physiological investigation of gynecological and obstetrical problems." The staffs of hospitals should be increased to include, in addition to the always existing pathologist, a physiologist, a physiologic chemist, a pharmacologist and a bacteriologist, competent to observe human beings from their respective points of view. If this were done, not only could their rich stores of knowledge and experience be brought to the service of the clinician, but they in turn could have wider opportunities than their laboratories afford for the investigation of their problems and the broadening of their knowledge. Their work should by no means be restricted to experimentation on animals, but they should have abundant opportunities for the legitimate extension of their observations to human beings. "How helpful it would be," says Sir William Osler, "if clinicians had always at hand skilled physiologists, pathologists and chemists to apply their most advanced technic to clinical problems, and not the technic alone, but the biological and chemical principles upon which medicine as an exact natural science is founded." This could be made a powerful agency in drawing together the two divisions of medicine, now unfortunately far too divergent.

IMPORTANCE OF SCIENCE TO THE STUDENT

At the beginning of this address I spoke of the distinction that has come to exist in the medical curriculum between the medical sciences and the clinical subjects, and of the sharp break that occurs at the middle of the four years' course when the student drops his science and turns eagerly to the clinic and all that it is supposed to bring to him. Such a break ought never to be. One spirit, and only one, ought to permeate the undergraduate's four years, and that should be the spirit of untiring devotion to science, the master to whom all must pay their whole allegiance who wish to attain the best. Those who teach the medical sciences have not done their whole duty if they have not convinced their students that the sciences provide the key by which all that comes after may be unlocked; and the teachers of the clinical subjects have likewise failed if they do not hold to a rigid scientific ideal in their outlook over the details of practical medicine. Nor must this ideal be forgotten any the more during the two years of the hospital internship. After that the young doctor, sent forth on a world that is more or less skeptical of the efficiency of medicine and inclined to turn to fads and cults, must decide for himself what his course will be. He will find two paths open to him — the path of tradition and the path of progress. With the one his professional life will consist of a long succession of yesterdays, filled with the contemplation of what has been; with the other he will be ever reaching out for what to-morrow may yield. To him medicine may be either a trade or a profession. A man who is to follow a trade learns as an apprentice certain procedures, and thereafter it is his task to follow those procedures implicitly. The routine of a trade once learned is learned for a lifetime. It is possible to practice medicine in the same unintellectual way and to win what the world may call success. But there exists a higher type of physician. He it is who recognizes that his is a learned profession and who rises to the full dignity of it. Fortunate will be the life of that young man who feels irresistibly the call to the higher ideal.

GASTRO-INTESTINAL STUDIES

IV. DIRECT EVIDENCE OF THE SECRETION OF A GASTRIC JUICE OF CONSTANT ACID CONCENTRATION BY THE HUMAN SUBJECT

MARTIN E. REHFUSS, M.D.
AND
PHILIP B. HAWK, PH.D.
PHILADELPHIA

The question of gastric acidity has received considerable attention in recent years. It has been demonstrated quite conclusively, for example, that the phrase "the normal gastric juice of man contains about 0.2 per cent. of hydrochloric acid" can no longer go unquestioned. On the basis of older experimental evidence a rather high acidity (from 0.5 to 0.6 per cent.) was accorded the gastric juice of such lower animals as the cat and dog, whereas man was found to remain content with an acidity in the vicinity of 0.2 per cent. More recent experiments,[1] however, indicate that the actual acidity of the gastric juice of man is very similar (from 0.4 to 0.5 per cent.) to the gastric juice of the cat and the dog.

Pawlow,[2] on the basis of experiments made principally by his colleague Ketscher, enunciated the belief that "the gastric juice as it flows from the glands possesses a constant acidity." Various observers have

1. Reports of these are given in the following:
Umber: Berl. klin. Wchnschr., 1905, xlii, 56.
Sommerfeld: Biochem. Ztschr., 1908, ix, 352.
Bickel: Deutsch. med. Wchnschr., 1906, xxxii, 1323.
Hornberg: Jahresb. ü. d. Fortschr. d. Tiersch., 1903, xxxiii, 547.
Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11.
Rehfuss, Bergeim, and Hawk: THE JOURNAL A. M. A., 1914, lxiii, 11.
Babkin: Die äussere Sekretion der Verdauungsdrüsen, Berlin, 1914, p. 113.
Boldyreff: Quart. Jour. Exper. Phys., 1914, viii, 1.
2. Pawlow: The Work of the Digestive Glands, translated by Thompson, Ed. 2, p. 32.

repeatedly demonstrated both clinically and experimentally that there are pronounced variations in the gastric acidity. These variations Pawlow would explain as due mainly to the varying lengths of time the juice was in contact with the alkaline mucosa of the stomach. In substantiation of this view, he brought experimental evidence to prove that the juice which was secreted rapidly possessed a higher acidity than juice which was secreted more slowly, the latter form of juice having been more thoroughly neutralized because of its longer or more thorough contact with the mucus of the mucosa. The theory of constant acidity received further support in certain of Pawlow's tests on fasting dogs equipped with the Pawlow pouch. When such animals were subjected to "sham feeding," the acidity of the gastric juice remained constant notwithstanding the fact that the chlorid content of the animal's body was very markedly deficient. "Sham feeding" finally failed to evoke any secretion of gastric juice; but so long as there was any output of juice, it was of constant acid concentration.

Boldyreff[1] is the latest to assert a constant acidity for the human gastric juice. This investigator declares that the juice as poured out by the gastric glands has an acidity of about 5 per cent. This secretion of relatively high acidity is rapidly neutralized through the instrumentality of the regurgitated duodenal juices, the prime factor in the neutralization being the pancreatic juice. The "optimum" acidity is placed by Boldyreff at from 0.15 to 0.2 per cent., and the aim of the reflux of alkaline material into the intestine is to maintain the "optimum" acidity. If alkaline, neutral or faintly acid juices are introduced into the stomach, they are believed to excite an additional outpouring of the highly acid juice in order that the acid concentration of the stomach contents may be maintained at the "optimum."

In experiments on cats which had been subjected to the Pawlow pouch, Carlson, Orr and Brinkman[3] have recently demonstrated that "milk, whether ingested voluntarily or given forcibly, yields practically identical quantities and concentrations of gastric juice."

Wills and Hawk,[4] in a series of tests on the influence of water drinking with meals, demonstrated that the excretion of urinary ammonia was directly proportional to the volume of water ingested. They concluded that "the uniform relationship between water ingestion and the ammonia output might perhaps be considered as indicating that there was an attempt on the part of the gastric cells to maintain a uniform acid concentration."

Kersten[5] reports data which might be interpreted as demonstrating that the dog under some circumstances at least secretes for rather long periods a juice which is approximately constant in its acid concentration. The acidity values for a period of six hours after feeding 600 c.c. of milk are submitted in Table 1.

TABLE 1.—ACIDITY VALUES GIVEN BY KERSTEN

Hour	Hydrochloric Acid Per Cent.
First	0.49
Second	0.55
Third	0.55
Fourth	0.55
Fifth	0.48
Sixth	0.45

3. Carlson, Orr and Brinkman: Am. Jour. Physiol., 1914, xxxiii, 86.
4. Wills and Hawk: Jour. Am. Chem. Soc., 1914, xxxvi, 158.
5. Kersten: Inaug. Diss., St. Petersburg, 1902.

Certain experiments of Chighin[6] are also of interest in this connection. This author demonstrated that the introduction of 150 c.c. of water into the large stomach of a Pawlow dog evoked a secretion of 2.1 c.c. of gastric juice in the pouch, the juice containing 0.42 per cent. of hydrochloric acid, whereas when 500 c.c. of water were used a much more copious flow of juice, 7.2 c.c., was obtained, but its acidity was approximately the same (0.45 per cent.) as before.

Lönnqvist[7] has also reported data which may be interpreted as indicating, in some cases at least, that the juice as secreted from the Pawlow pouch, after the introduction of water and salt solution into the large stomach, is practically constant in acid concentration for periods of at least two hours or more.

Foster and Lambert,[8] on the basis of experiments made on Pawlow dogs, report data which indicate that the acidity of the juice is not constant, but varies from hour to hour. They assert that "early in the digestive period the content of chlorin in the juice is higher than toward the end of digestion." Among other data, they submit that given in Table 2.

TABLE 2.—ACIDITY VALUES GIVEN BY FOSTER AND LAMBERT

Hour	Hydrochloric Acid Per Cent.
First	0.56
Second	0.52
Third	0.44
Fourth	0.31
Fifth	0.22

Foster and Lambert say, "If the statement of Pawlow relative to the constancy of acid is correct, the gastric secretion would form an exception to present ideas of glandular activity."

EXPERIMENT AND COMMENT

In the course of the investigations on the gastric acidity which have been under way in this laboratory for some time, it was noted that there were many individuals, both normal and pathologic so far as the gastric function was concerned, whose gastric juice was rather constant in its acid concentration for considerable periods of time. The data from these cases are submitted at this time as evidence favoring the contention of Pawlow which we have already mentioned. The samples of juice were removed for analysis by means of the Rehfuss tube,[9] which has been used in the investigations previously reported from this laboratory.[10] The following cases have been selected inasmuch as they demonstrate forcibly the tendency of the gastric secretion, after it reaches a certain equilibrium, to be poured out in a more or less constant acid concentration. In the beginning of the curve other forces come into play: (1) the passage of the material through the alkaline mucosa; (2) the union of the alkaline pyloric secretion with the acid fundal secretion; (3) the fixation or neutralization of the acid by the ingested material, and (4) probably the decreased velocity of the formation of the acid and the consequent greater neutralization by the mucosa. When all forces affording a stimulus to secretion are

6. Chighin: Inaug. Diss., St. Petersburg, 1894.
7. Lönnqvist: Skand. Arch. Physiol., 1906, xviii, 223.
8. Foster and Lambert: Jour. Exper. Med., 1908, x, 820.
9. Rehfuss: Am. Jour. Med. Sc., June, 1914.
10. Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11; II. The Fractional Study of Gastric Digestion with a Description of Normal and Pathologic Curves, ibid., Sept. 12, 1914, p. 909. Bergeim, Rehfuss and Hawk: Jour. Biol. Chem., 1914, xix, No. 3.

But it is not in nervous diseases alone that critical analysis must be carried beyond the symptoms to the underlying focus of the disease. One of the leading orthopedists of America told me a few days ago of a severe case of arthritis which he had recently had in his practice. The patient had been bedridden for several months, unable to move, except with difficulty and much pain. The inflamed and stiffened state of the joints was obvious and seemed to call for local treatment. The physician, however, caused a thorough chemical and physical examination of the patient to be made, during which a roentgenogram revealed the presence of unsuspected local abscesses at the roots of several of the teeth. The removal of these affected teeth resulted in the prompt recovery of the patient from his joint disease. In the opinion of this physician every orthopedist ought to have at his command a competent physiologic chemist with a well-equipped laboratory.

Prof. J. Whitridge Williams, of Johns Hopkins University, in a recent address as president of the American Gynecological Society, severely criticized the members of that society for not taking a more prominent part in the advancement of obstetric knowledge, and he added that universities ought to equip and maintain women's clinics "liberally provided with laboratories for the anatomical, chemical, pathological and physiological investigation of gynecological and obstetrical problems." The staffs of hospitals should be increased to include, in addition to the always existing pathologist, a physiologist, a physiologic chemist, a pharmacologist and a bacteriologist, competent to observe human beings from their respective points of view. If this were done, not only could their rich stores of knowledge and experience be brought to the service of the clinician, but they in turn could have wider opportunities than their laboratories afford for the investigation of their problems and the broadening of their knowledge. Their work should by no means be restricted to experimentation on animals, but they should have abundant opportunities for the legitimate extension of their observations to human beings. "How helpful it would be," says Sir William Osler, "if clinicians had always at hand skilled physiologists, pathologists and chemists to apply their most advanced technic to clinical problems, and not the technic alone, but the biological and chemical principles upon which medicine as an exact natural science is founded." This could be made a powerful agency in drawing together the two divisions of medicine, now unfortunately far too divergent.

IMPORTANCE OF SCIENCE TO THE STUDENT

At the beginning of this address I spoke of the distinction that has come to exist in the medical curriculum between the medical sciences and the clinical subjects, and of the sharp break that occurs at the middle of the four years' course when the student drops his science and turns eagerly to the clinic and all that it is supposed to bring to him. Such a break ought never to be. One spirit, and only one, ought to permeate the undergraduate's four years, and that should be the spirit of untiring devotion to science, the master to whom all must pay their whole allegiance who wish to attain the best. Those who teach the medical sciences have not done their whole duty if they have not convinced their students that the sciences provide the key by which all that comes after may be unlocked; and the teachers of the clinical subjects have likewise failed if they do not hold to a rigid scientific ideal in their outlook over the details of practical medicine. Nor must this ideal be forgotten any the more during the two years of the hospital internship. After that the young doctor, sent forth on a world that is more or less skeptical of the efficiency of medicine and inclined to turn to fads and cults, must decide for himself what his course will be. He will find two paths open to him—the path of tradition and the path of progress. With the one his professional life will consist of a long succession of yesterdays, filled with the contemplation of what has been; with the other he will be ever reaching out for what to-morrow may yield. To him medicine may be either a trade or a profession. A man who is to follow a trade learns as an apprentice certain procedures, and thereafter it is his task to follow those procedures implicitly. The routine of a trade once learned is learned for a lifetime. It is possible to practice medicine in the same unintellectual way and to win what the world may call success. But there exists a higher type of physician. He it is who recognizes that his is a learned profession and who rises to the full dignity of it. Fortunate will be the life of that young man who feels irresistibly the call to the higher ideal.

GASTRO-INTESTINAL STUDIES

IV. DIRECT EVIDENCE OF THE SECRETION OF A GASTRIC JUICE OF CONSTANT ACID CONCENTRATION BY THE HUMAN SUBJECT

MARTIN E. REHFUSS, M.D.
AND
PHILIP B. HAWK, PH.D.
PHILADELPHIA

The question of gastric acidity has received considerable attention in recent years. It has been demonstrated quite conclusively, for example, that the phrase "the normal gastric juice of man contains about 0.2 per cent. of hydrochloric acid" can no longer go unquestioned. On the basis of older experimental evidence a rather high acidity (from 0.5 to 0.6 per cent.) was accorded the gastric juice of such lower animals as the cat and dog, whereas man was found to remain content with an acidity in the vicinity of 0.2 per cent. More recent experiments,[1] however, indicate that the actual acidity of the gastric juice of man is very similar (from 0.4 to 0.5 per cent.) to the gastric juice of the cat and the dog.

Pawlow,[2] on the basis of experiments made principally by his colleague Ketscher, enunciated the belief that "the gastric juice as it flows from the glands possesses a constant acidity." Various observers have

1. Reports of these are given in the following:
Umber: Berl. klin. Wchnschr., 1905, xlii, 56.
Sommerfeld: Biochem. Ztschr., 1908, ix, 352.
Bickel: Deutsch. med. Wchnschr., 1906, xxxii, 1323.
Hornberg: Jahresb. ü. d. Fortschr. d. Tiersch., 1903, xxxiii, 547.
Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11.
Rehfuss, Bergeim, and Hawk: THE JOURNAL A. M. A., 1914, lxiii, 11.
Babkin: Die äussere Sekretion der Verdauungsdrüsen, Berlin, 1914, p. 113.
Boldyreff: Quart. Jour. Exper. Phys., 1914, viii, 1.
2. Pawlow: The Work of the Digestive Glands, translated by Thompson, Ed. 2, p. 32.

repeatedly demonstrated both clinically and experimentally that there are pronounced variations in the gastric acidity. These variations Pawlow would explain as due mainly to the varying lengths of time the juice was in contact with the alkaline mucosa of the stomach. In substantiation of this view, he brought experimental evidence to prove that the juice which was secreted rapidly possessed a higher acidity than juice which was secreted more slowly, the latter form of juice having been more thoroughly neutralized because of its longer or more thorough contact with the mucus of the mucosa. The theory of constant acidity received further support in certain of Pawlow's tests on fasting dogs equipped with the Pawlow pouch. When such animals were subjected to "sham feeding," the acidity of the gastric juice remained constant notwithstanding the fact that the chlorid content of the animal's body was very markedly deficient. "Sham feeding" finally failed to evoke any secretion of gastric juice; but so long as there was any output of juice, it was of constant acid concentration.

Boldyreff[1] is the latest to assert a constant acidity for the human gastric juice. This investigator declares that the juice as poured out by the gastric glands has an acidity of about 5 per cent. This secretion of relatively high acidity is rapidly neutralized through the instrumentality of the regurgitated duodenal juices, the prime factor in the neutralization being the pancreatic juice. The "optimum" acidity is placed by Boldyreff at from 0.15 to 0.2 per cent., and the aim of the reflux of alkaline material into the intestine is to maintain the "optimum" acidity. If alkaline, neutral or faintly acid juices are introduced into the stomach, they are believed to excite an additional outpouring of the highly acid juice in order that the acid concentration of the stomach contents may be maintained at the "optimum."

In experiments on cats which had been subjected to the Pawlow pouch, Carlson, Orr and Brinkman[3] have recently demonstrated that "milk, whether ingested voluntarily or given forcibly, yields practically identical quantities and concentrations of gastric juice."

Wills and Hawk,[4] in a series of tests on the influence of water drinking with meals, demonstrated that the excretion of urinary ammonia was directly proportional to the volume of water ingested. They concluded that "the uniform relationship between water ingestion and the ammonia output might perhaps be considered as indicating that there was an attempt on the part of the gastric cells to maintain a uniform acid concentration."

Kersten[5] reports data which might be interpreted as demonstrating that the dog under some circumstances at least secretes for rather long periods a juice which is approximately constant in its acid concentration. The acidity values for a period of six hours after feeding 600 c.c. of milk are submitted in Table 1.

TABLE 1.—ACIDITY VALUES GIVEN BY KERSTEN

Hour	Hydrochloric Acid Per Cent.
First	0.49
Second	0.55
Third	0.55
Fourth	0.55
Fifth	0.48
Sixth	0.45

3. Carlson, Orr and Brinkman: Am. Jour. Physiol., 1914, xxxiii, 86.
4. Wills and Hawk: Jour. Am. Chem. Soc., 1914, xxxvi, 138.
5. Kersten: Inaug. Diss., St. Petersburg, 1902.

Certain experiments of Chighin[6] are also of interest in this connection. This author demonstrated that the introduction of 150 c.c. of water into the large stomach of a Pawlow dog evoked a secretion of 2.1 c.c. of gastric juice in the pouch, the juice containing 0.42 per cent. of hydrochloric acid, whereas when 500 c.c. of water were used a much more copious flow of juice, 7.2 c.c., was obtained, but its acidity was approximately the same (0.45 per cent.) as before.

Lönnqvist[7] has also reported data which may be interpreted as indicating, in some cases at least, that the juice as secreted from the Pawlow pouch, after the introduction of water and salt solution into the large stomach, is practically constant in acid concentration for periods of at least two hours or more.

Foster and Lambert,[8] on the basis of experiments made on Pawlow dogs, report data which indicate that the acidity of the juice is not constant, but varies from hour to hour. They assert that "early in the digestive period the content of chlorin in the juice is higher than toward the end of digestion." Among other data, they submit that given in Table 2.

TABLE 2.—ACIDITY VALUES GIVEN BY FOSTER AND LAMBERT

Hour	Hydrochloric Acid Per Cent.
First	0.56
Second	0.52
Third	0.44
Fourth	0.31
Fifth	0.22

Foster and Lambert say, "If the statement of Pawlow relative to the constancy of acid is correct, the gastric secretion would form an exception to present ideas of glandular activity."

EXPERIMENT AND COMMENT

In the course of the investigations on the gastric acidity which have been under way in this laboratory for some time, it was noted that there were many individuals, both normal and pathologic so far as the gastric function was concerned, whose gastric juice was rather constant in its acid concentration for considerable periods of time. The data from these cases are submitted at this time as evidence favoring the contention of Pawlow which we have already mentioned. The samples of juice were removed for analysis by means of the Rehfuss tube,[9] which has been used in the investigations previously reported from this laboratory.[10] The following cases have been selected inasmuch as they demonstrate forcibly the tendency of the gastric secretion, after it reaches a certain equilibrium, to be poured out in a more or less constant acid concentration. In the beginning of the curve other forces come into play: (1) the passage of the material through the alkaline mucosa; (2) the union of the alkaline pyloric secretion with the acid fundal secretion; (3) the fixation or neutralization of the acid by the ingested material, and (4) probably the decreased velocity of the formation of the acid and the consequent greater neutralization by the mucosa. When all forces affording a stimulus to secretion are

6. Chighin: Inaug. Diss., St. Petersburg, 1894.
7. Lönnqvist: Skand. Arch. Physiol., 1906, xviii, 223.
8. Foster and Lambert: Jour. Exper. Med., 1908, x, 820.
9. Rehfuss: Am. Jour. Med. Sc., June, 1914.
10. Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11; II. The Fractional Study of Gastric Digestion with a Description of Normal and Pathologic Curves, ibid., Sept. 12, 1914, p. 909. Bergeim, Rehfuss and Hawk: Jour. Biol. Chem., 1914, xix, No. 3.

at work this affords a complete evacuation of the glands and a more representative secretion. The curve naturally drops toward the end of digestion, owing (1) to the lack of continued stimuli and (2) possibly to the formation of certain inhibitory or secretory moderator substances such as peptone. It can therefore be understood that during the process of digestion more or less fixation of available acid occurs, giving us a curve which we naturally encounter in normal cases. In the absence of this factor or in the presence of an excessive secretion, the outpouring of juice is of surprisingly constant acid concentration, and, in the absence of some substances which are capable of combining with the acid, remarkably constant in its physical and chemical characteristics. This is particularly marked in the so-called "continued secretion" which we have indicated as following certain types of digestive curves and in the hypersecretion which is encountered. The irregularities in the beginning of the curve and particularly the psychic phase can be explained on the basis of the irregular stimuli which enter into play at that particular moment.

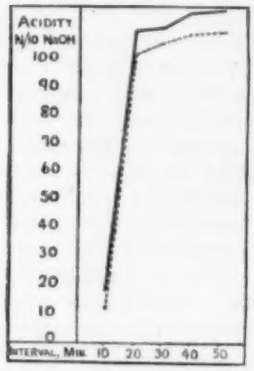


Chart 1.—L., after the administration of 500 c.c. tap water. Solid line, total acidity; broken line, free acid.

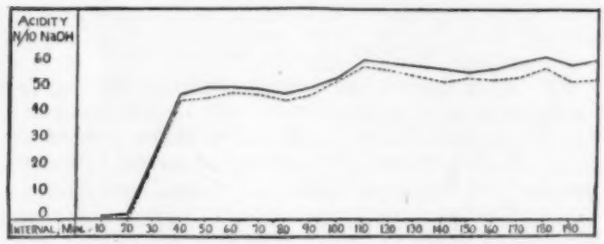


Chart 2.—H., "continued" secretion after the administration of 50 c.c. water at 50 C. Solid line, total acidity; broken line, free hydrochloric acid.

We believe that this constant acidity or the "average" acidity with slight variations in health is always to be found within certain limits, but may be in the absence of combining or neutralizing substances of comparatively high concentration. In disease every variation is encountered which must be interpreted by a thorough study of all the phenomena attending the outpouring of the secretion.

The following experiments are reported in detail because as far as we know they constitute the first evidence (direct) of the outpouring in the human subject of a secretion of constant acid concentration:

EXPERIMENT 1.—In a young student, aged 28, an excessive meat eater who smokes cigarets excessively, the figures given in Table 3 were obtained on the empty stomach in response to the introduction of 500 c.c. of cool tap-water.[11] Besides indicating the rapid exit of water from the stomach, the figures show that the character of the juice was remarkably constant in its acid content and that the outpouring of the liquid was unchanged until the termination of the test (Chart 1).

11. Bergeim, Rehfuss and Hawk: Jour. Biol. Chem., to be published.

EXPERIMENT 2.—In an experiment on Mr. H., a person to all intents and purposes in perfectly normal health, there was an extraordinary continued secretion which lasted for several hours in response to the administration of 50 c.c. of distilled water at 50 C. (122 F.).[11]

TABLE 3.—FINDINGS IN EXPERIMENT 1

No.	Time, Minutes	Total Acidity	Free Acid
1	10	19.0	16.5
2	20	111.5	103.0
3	30	112.5	107.5
4	40	118.5	110.0
5	50	119.5	111.5

TABLE 4.—FINDINGS IN EXPERIMENT 2

No.	Time, Minutes	Total Acidity	Free Acid
1	10	1.5	0.
2	20	2.0	0.
3	30	23.0	21.0
4	40	47.0	45.0
5	50	50.5	46.0
6	60	50.0	48.0
7	70	49.0	47.0
8	80	47.5	45.5
9	90	49.5	47.0
10	100	54.5	53.0
11	110	61.5	58.5
12	120	59.0	57.0
13	140	57.0	52.5
14	150	56.0	54.5
15	160	57.0	53.5
16	170	60.0	54.5
17	180	62.5	58.0
18	190	59.0	53.5
19	200	61.0	53.5

The curve (Chart 2) shows a remarkable constancy with slight rhythmic fluctuations within very narrow limits. Many similar curves were obtained in normal individuals under the influence of varying stimuli, all of which tend to reach a certain level and then fluctuate within very narrow limits.

EXPERIMENT 3.—A medical student (Mr. F.) who smokes excessively has never been troubled with any gastro-intestinal disturbance. Lavage of the stomach was followed by the administration of 100 c.c. of water.[11]

TABLE 5.—FINDINGS IN EXPERIMENT 3

No.	Time, Minutes	Total Acidity	Free Acid
1	10	22.5	20.0
2	20	33.5	31.5
3	30	45.5	44.0
4	40	72.0	66.5
5	50	82.0	69.0
6	60	106.5	87.0
7	110	87.5	82.0
8	120	83.5	77.0
9	130	86.0	80.5
10	140	88.5	83.5
11	150	78.0	76.0
12	160	90.5	86.0
13	210	84.0	75.0
14	220	83.0	75.0
15	230	87.0	82.0
16	240	97.0	87.0
17	250	98.5	92.0

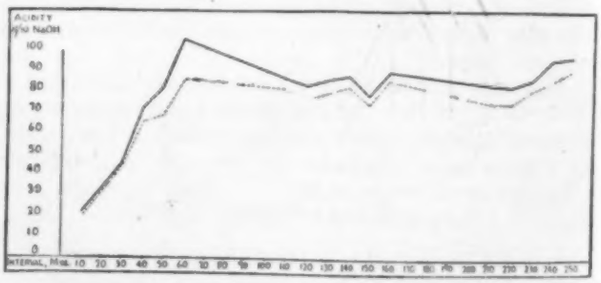


Chart 3.—F., 100 c.c. water after lavage. "Continued" secretion, four hours and ten minutes in duration. Solid line, total acidity; broken line, free hydrochloric acid.

The curve (Chart 3) likewise emphasizes the tendency toward a secretion of constant acid concentration. We have many curves similar to this, indicating that normally after the secretion is fully established, it has a strong tendency to become constant.

From these frankly normal cases, at least normal inasmuch as they were free from all evidence of gastro-intestinal disturbances, let us turn to several which are distinctly pathologic, mostly recruited from the medical wards of the Jefferson Hospital.

EXPERIMENT 4.—Mrs. I. was given an Ewald meal. A study of the curve in Chart 4 shows first that there was slow response with the rather tardy appearance of a secretion of comparatively low acidity. After reaching this point, with slight fluctuations, it remained at that level and within two and one-half hours there was still an appreciable amount of material in the stomach, although further examination revealed nothing. Cytologic examination was likewise negative; no mucus, no occult blood, only impairment of motility which together with the physical examination and the history justified the diagnosis of atony.

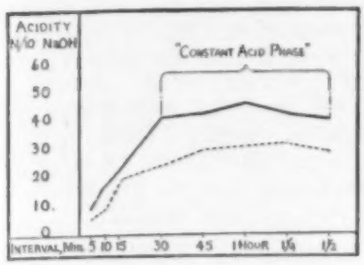


Chart 4.—Mrs. I., Ewald meal. Atony. Solid line, total acidity; broken line, free hydrochloric acid.

EXPERIMENT 5.—The condition of the patient, Miss F., was diagnosed as general visceroptosis, movable right kidney, upper intestinal catarrh and spastic constipation, the whole a part of the typical Stiller syndrome with rather pronounced vagotonic symptoms. Clinically the most pronounced symptoms were those due to atony, the discomfort and eructations following the ingestion of food being due to atony and being completely relieved by measures directed toward that end.

At two and three-quarters hours there was still an appreciable amount of material in the stomach, but examination of various samples, as in the previous case, failed to elicit the slightest sign of inflammation, neoplasm or ulceration.

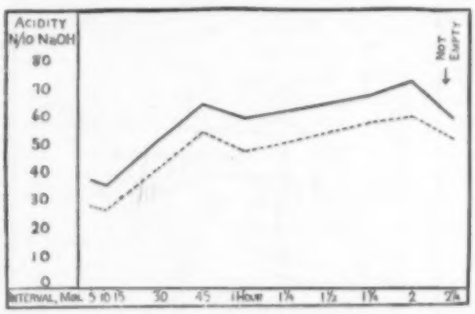


Chart 5.—Miss F., Ewald meal. Vagotonia; gastroptosis; atony. Solid line, total acidity; broken line, free hydrochloric acid.

TABLE 6.—FINDINGS IN EXPERIMENT 4

No.	Time, Minutes	Total Acidity	Free Acid
1	5	10.5	6.0
2	10	19.5	10.5
3	15	23.0	20.3
4	30	42.0	25.5
5	45	43.5	30.0
6	60	47.0	...
7	75	43.0	32.0
8	90	41.0	29.0
9	150	Still considerable food and juice in the stomach, although no marked retention.	

TABLE 7.—FINDINGS IN EXPERIMENT 5

No.	Time, Minutes	Total Acidity	Free Acid
1	5	38.5	29.0
2	10	37.0	28.5
3	30	53.0	...
4	45	66.5	56.5
5	60	61.0	49.0
6	75	63.0	52.5
7	90	66.5	...
8	105	69.5	59.5
9	120	74.0	61.5
10	135	60.5	53.3

EXPERIMENT 6.—This is a definitely pathologic case which illustrates a number of points regarding this study. The individual in question was given an Ewald meal on the empty stomach and the figures given in Table 8 obtained.

TABLE 8.—FINDINGS IN EXPERIMENT 6

No.	Time, Minutes	Total Acidity	Free Acid
1	5	31.8	...
2	10	41.4	...
3	30	30.2	18.0
4	45	30.2	20.0
5	60	35.8	23.3
6	75	38.0	26.7
7	90	43.5	30.0
8	100	43.0	30.3
9	105	51.2	38.8
10	120	50.5	38.0

At this point, the patient began to complain of pain and gnawing, and the figures showed a distinct rise in acidity as follows:

11	135	56.3	44.5
12	150	63.3	52.7

From this point on at 2¾ hours the stomach was empty after a distinct delay, but there followed a pure hypersecretion with average figures of

13	...	76.3	69.8

Careful study of the curve in Chart 6 shows that it is full of interesting data. In the first place the initial figures are high, in fact almost as high as the figures which follow, which average around 40. The high initial figure indicates, what a glance at the specimens shows, that the administration of the meal had been preceded by hypersecretion. The patient therefore had a fasting hypersecretion, which was confirmed by examination of the empty stomach. Then the digestive cycle commences with an outpouring of juice, which is comparatively constant for several hours during which there is no subjective complaint. Although there is a slight rise at one and three-quarters hours, the patient feels comfortable until the two and one-quarter hour interval, when he complains of distinct gnawing and griping. At the same time, it is evident that the stomach is empty and two things are occurring: an outpouring of pure juice which is unsaturated by food, and an increase in the acid concentration of the juice which is being propelled into the duodenum. At intervals he called attention to the cramp-like character of the pain, namely, pylorospasm. This is frequently seen in these cases and indicates the value of this method of

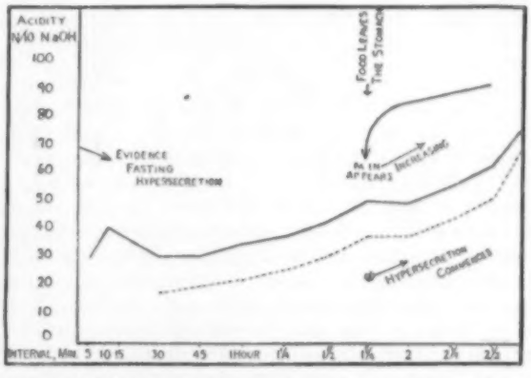


Chart 6.—N., duodenal ulcer, confirmed by operation. Solid line, total acidity; broken line, free hydrochloric acid.

examination. It enables us to record graphically the exact changes which are occurring in the stomach at any particular moment, and by the character of digestion record the particular phase in the digestive cycle in which the change is occurring. The pouring of digestive products of the latter part of the meal into the duodenum has given rise, either reflexly or through the action of hormones, to the outpouring of a juice which

apparently is not of the same character as that observed through the digestive phase, and therefore pathologic for the individual. Another point of interest was found in this case. The examination of the empty stomach revealed a twelve-hour retention (peas, the remains of green vegetables) and the specimens at one and one-half, one and three-quarters and two hours showed definite amounts of free fat. The diagnosis of a stenosing ulcer of the duodenum was made, and an operation was subsequently performed which demonstrated the correctness of the diagnosis.

EXPERIMENT 7.—The patient, Miss K. G., complained for several years of severe pain after eating, and on the supposition that an ulcer was present, operation was performed and

TABLE 9.—FINDINGS IN EXPERIMENT 7

No.	Time, Minutes	Total Acidity	Free Acid
1	20	40.7	18.5
2	30	47.0	....
3	45	50.3	25.6
4	60	48.2	25.9
5	75	43.5	25.0
6	90	42.7	24.3
7	105	44.9	25.7
8	120	48.4	28.5

no ulcer was found. The operation failed completely to relieve her and she continued to complain of the same type of pain with occasional attacks of hyperacidity. The pain was particularly pronounced after she had a bowel movement or anything which decreased intra-abdominal tension and permitted the stomach to sag. The history of this case was more or less typical of ulcer, although the last symptom, as one clinician pointed out, was very suggestive of adhesions. This was substantiated by the intermittent character of the pain often independent of meals. There was, however, sharp pain shortly after the ingestion of food. Accordingly an examination was made of the empty stomach, which showed absolutely no retention but a large very liquid residuum, a fasting hypersecretion. An Ewald meal was then given. The results obtained by fractional examination are recorded in Table 9.

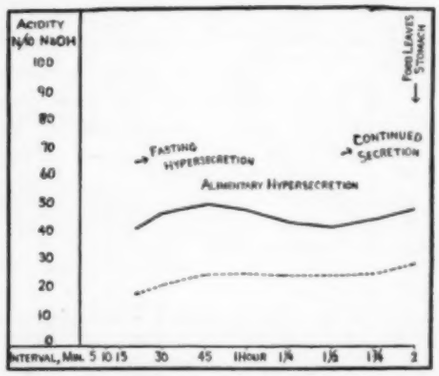


Chart 7.—Miss G., gastric adhesions, confirmed by operation. Notice continued high acidity. Solid line, total acidity; broken line, free hydrochloric acid.

Digestion was over in normal time, and there were no retention, no mucus, no bacteria, no occult blood, in fact nothing unusual about the specimens except the alimentary and continued hypersecretion, there being an exaggerated quantity of juice poured out in every phase of digestion. One point is significant: The gastric curve (Chart 7) is almost a straight line, there being no rise from the abscissa, and with the exception of the first figure, which is but slightly lower than the others owing to temporary saturation by food, the juice is practically of constant acid concentration. This curve is always pathologic and never seen in normal cases. In this case, examination of the stools, cytologic examination of the gastric contents and a study of the albumin content were all against the possibility of ulcer. We could find nothing in the curve or the specimens to suggest ulcer except the obvious hypersecretion suggestive of irritation. Roentgen findings indicated a spastic hour-glass contraction with ulcer on the lesser curvature. We would willingly believe this, but the spastic hour glass should also be accompanied by pylorospasm and delayed motility, particularly with gastric ulcer, evidence of which we could not find. In summing up our conclusions, we suggested ulcer, pylorospasm, possibly a fissure of the pylorus, but in all probability adhesions. Operation was subsequently performed and the only finding was adhesions, causing a transverse constriction of the organ. This case served to intensify the feeling that negative cytologic, chemical and occult blood findings in the presence of hyperacidity and hypersecretion indicate usually an extrinsic cause. The case shows well the pouring out of juice of a constant acid concentration.

Lack of space prevents us from enumerating a number of cases which we have collected after the administration of various stimuli, the Ewald meal, water, etc., which seem to indicate that after the phenomena of initial neutralization and fixation, there is apparently an equilibrium in the factors which bring about the production of acid, and the juice is very constant in its acid concentration. This is particularly the case in hypersecretion and in the normal "continued" secretion cases in which in the absence of substances which are capable of neutralizing the acidity is often remarkably constant. This is particularly the case in the second or chemical phase of the gastric cycle in contradistinction to the initial or psychic phase, which may be more erratic.

CONCLUSIONS

1. By means of the fractional method, we have been able to demonstrate directly evidence of the secretion of a gastric juice of constant acidity in the human stomach.

2. This has been demonstrated in a large number of cases both normal and pathologic.

3. The low acid figures obtained at the beginning of the ordinary curve are explained by: (*a*) the lessened velocity in the formation of acid during the beginning of digestion (Pawlow); (*b*) the partial neutralization of the newly formed acid by the mucosa (Pawlow), and (*c*) the neutralization and fixation of the acid by the proteins of the bread. The lessening in acid figures toward the end of digestion is probably explained in those cases in which that phenomenon occurs and to (*a*) the lessened acid formation incident to the accumulation of inhibitory and sedative substances which tend to lessen acid formation, together with (*b*) a partial neutralization by the food of the acid already formed.

4. A clear exposition of constant acidity is best seen in those cases of "continued" secretion which we have pointed out in normal individuals and in many cases of hypersecretion in which, in the absence of definite material on which acid fixation or neutralization can occur, the acidity remains constant over long periods of time.

5. Pathologic deviations in this "constant" acidity can be noted and are often accompanied by subjective symptoms.

6. This is the first direct demonstration in the human subject in favor of Pawlow's theory of the secretion of a juice of constant acid concentration.

We wish to thank Dr. Olaf Bergeim and Prof. C. C. Fowler for assistance rendered.

Interdependence of Rural and City Health.—Disease is communal. The health of the city is dependent upon the health of the country. A large part of the disease in the cities is brought in from the country.—William De Kleine, in *Pulbic Health*, published by Michigan State Board of Health.

THE PREVALENCE OF OCCUPATIONAL FACTORS IN DISEASE, AND SUGGESTIONS FOR THEIR ELIMINATION *

E. R. HAYHURST, A.M., M.D.

Director, Division of Occupational Diseases, Ohio State Board of Health

COLUMBUS, OHIO

The purpose of this paper is, first, to point out the socially wasteful practice of administering daily to person after person for the same types of morbidity, due to the same causes, and, secondly, to emphasize a much neglected sphere of etiology, the proper conception of which is contained in the term "industrial relations."

The research summarizes a study of (1) U. S. Census Mortality Statistics of Occupations; (2) 65,000 dispensary records and many hundreds of cases personally seen during a two-year period at Rush Medical College (Central Free Dispensary); and (3) the medical portion of 27,887 cases in which the patients received treatment in Cook County Hospital during the year 1913.

1. Attention is first directed to an arrangement of mortality statistics somewhat different from forms customarily shown. An analysis of the mortality statistics of 210,507 persons engaged in 140 occupations in the registration area of the United States exhibits the percentages for the census year 1909 (the only year in which complete tables were published), given in Table 1.

TABLE 1.—MORTALITY AMONG OCCUPIED MALES*

	Those in Agricultural Pursuits. Percentage of All Deaths	Those in 131 Trades and Callings. Percentage of All Deaths
Deaths from *preventable* causes (6/7 are diseases)†	27.4	43.0
Deaths from *degenerative* diseases (under 70 years of age)‡	26.5	31.2
Total deaths after 70 years of age	35.9	13.4

*"Occupied males" include professional callings, officials and proprietors, those engaged in domestic and personal services as well as those we ordinarily term real workers, namely, those in trade and transportation, manufacturing and mechanical pursuits, miners, quarrymen, etc., composing a total of 140 chief occupations—including those engaged in nine agricultural pursuits.

† "Deaths from preventable causes" include typhoid fever, pulmonary tuberculosis, pneumonia (under 70 years), alcohol, lead poisoning, other occupational poisonings, suicide, accidental poisonings, accidents and injuries, rheumatism, bronchitis, pleurisy and hernia—for the last four, only such deaths as have occurred under 70 years are included.

‡ "Deaths from degenerative diseases" include cancer, diabetes, apoplexy, heart disease, "other circulatory diseases" (4,858) asthma, cirrhosis of the liver, "other liver diseases" (880), and Bright's disease. There remain in the census classification 27,105 deaths from peritonitis, appendicitis, "other respiratory, digestive, nervous" and "all other causes," a large percentage of which were also undoubtedly preventable or prematurely degenerative, but which are not taken into consideration in the classification given above.

From this we see a marked difference in the prevalence of certain wasteful death causes between the two classes compared. We also note that the agriculturist stands a one-in-three chance of reaching old age (70 years), while the others' probability is but little better than one in eight. None can fail to grasp the significance of this table. To disclaim the importance of these figures on the basis of incorrect diagnoses and uncertainty of occupations is unjust. The fact that only the registration area is included, and the recency of the reports answer the first point. As to the second feature. Wilbur[1] has shown that where another or previous occupation could have been a factor, it amounts to less than 1 per cent., which is less than ordinary errors of transcription.

2. Before proceeding farther it is necessary to explain one or two terms. *Industrial health-hazards* may be defined as working conditions which, while they may not impair the more resistant worker until after a prolonged period, produce morbid conditions in the average worker, and tend ultimately to create preventable and degenerative diseases in all persons so subjected. The hazards, arranged schematically in order the better to remember them, are (1) dust, (2) dampness, (3) darkness, (4) devitalized air, including motionless and vitiated air, (5) heat, (6) cold, (7) fatigue, (8) inactivity, (9) compressed air, (10) infections, (11) poisons and (12) industrial *stimulantism*—the latter a common condition created by the belief among many workers that alcohol, strong coffee, etc., limit or counteract the effects of dust, poisons and other hazards; it is also promoted by dirty, disordered and depressing surroundings and the absence of proper thirst-assuaging facilities at the workplace. It is understood that each of the above-named hazards stands for a class of component hazards.[2]

Among 65,000 different applicants at Rush Medical College (Central Free Dispensary) there were 15,475 persons with definite trades. Professional persons, laborers, housewives and nondescripts were excluded in summarizing. Of this number 10,370 had afflictions deemed not occupational or controversially so, and were also excluded; such were venereal, surgical and acute infectious diseases; sexual, senile and certain skin, ocular (including refractive errors), ear, nose, throat and some nervous diseases. Certain trade tendencies could be noted in many of these; a good part of the surgical cases were strictly occupational. The balance, or 5,105 tradespersons, or about one-third the total number of tradespersons, worked at occupations having definite health-hazards, and had afflictions which such hazards were producing and definitely promoting. Such circumstances would render them applicants for industrial compensation for occupational diseases according to many foreign provisions[3]—"the diseases (scheduled) shall be deemed to have been due to the nature of that employment unless the contrary is proved"—the burden of proof lying on the employer, who has to show that the worker has not been subjected to work hazards which could produce the disease in question.

Among 2,500 consecutive applicants at the Central Free Dispensary Branch of the Chicago Tuberculosis Institute were 875 tradespersons engaged in occupations surrounded with definite and well-known health-hazards. Of this number 615 were found to be tuberculous, 125 were not positively diagnosed and the balance were not suffering from tuberculosis. Of 368 patients who were intelligent and answered questions,

* Results of a study conducted at the Central Free Dispensary (Rush Medical College) and Cook County Hospital, Chicago, under the Occupational Disease Fellowship of the Otho S. A. Sprague Institute for Infectious Diseases.

1. Wilbur, Cressy L.: "Vital Statistics in the United States," Am. Jour. Pub. Health, December, 1913, p. 1258.

2. The Ohio State Board of Health, in the survey of industrial hygiene and occupational diseases which it is now conducting, uses, for workplace investigations, a card 4½x7 in. on which is logically arranged a complete list of the usual health-hazards of industry. By a simple code each is opinionated as "good," "fair" or "bad," as inspection reveals.

3. See "Compensation for Industrial Diseases," by E. T. H. Lawes, 1909, Stevens and Sons, London, 306 pp. Also, "Order Extending the Workmen's Compensation Act," Great Britain and Ireland, Bull. Int. Labour Office, 1914, ix, Nos. 1, 2, pp. 23-24. Also, "Compensation for Occupational Diseases," Ontario, Canada, U. S. P. H. Reports, Aug. 21, 1914, xxix, No. 34, p. 2176.

259 made complaints of working conditions involving dust, light, dampness and ventilation. Their statements were not taken as to the more insidious hazards such as poisons, fatigue effects, liability to communicable diseases, temperature exposures, and industrial alcoholism.

3. In Cook County Hospital in the year 1913 there were 11,022 adult medical cases. Of this number, at least 2,866, or about 27 per cent., were persons engaged in definite trades having well-known health-hazards and were suffering with afflictions which were induced or promoted by such hazards. None of these, so far as we know, received compensation or even condolence from the sources responsible, nor, indeed, were their cases investigated by an executive branch of the government.[4]

It might be considered advisable to give a division of all of these 11,022 persons by "occupations" and by diseases. This was attempted, but it suffices to say that a large majority of this class of "down and out" patients have no regular occupations, and that, also, the term "occupation" as used in a charitable institution of this sort is capable of such loose construction that, unless each case is painstakingly examined, records and casual statements more often mislead than direct. The term "laborer," for instance, was found to apply to practically all occupations.

In the hospital diagnoses of these 11,022 medical cases, one finds none classified under the head of "occupational," or "industrial" diseases. Turning next, however, to the prominent poisons, and running them through, the records disclose cases charged to industry as given in Table 2.

TABLE 2.—CASES OF POISONING CHARGED TO INDUSTRY

	No. of Patients
Lead poisoning	47
Arsenic poisoning	3
Wood alcohol poisoning	1

But if such a search is extended to *diseases which might be occupational,* such as dermatitis, eczema, bronchitis, tuberculosis, heat-exhaustion, tetanus, flat-foot, lumbago, rheumatism, constipation, gastritis, pancreatitis, appendicitis, nephritis, neuritis, and particularly neurasthenia, one finds many comments on the history sheets savoring of occupational etiology. In fact, after such a search one comes to the conclusion that almost any medical complaint may be occupational, or at least may have in its etiology an important occupational factor.

As limited in number as are the *lead poisoning cases* noted, they are more frequent in occurrence than in the year 1910 in the same hospital. In spite of all legislation which followed the report of the investigation by the Illinois Commission on Occupational Diseases in the year 1910, they have still continued to come[5] and in several instances from the same identical workplaces.

An analysis of the principal symptoms given on the history records and used for arriving at a diagnosis in the cases of plumbism is given in Table 3. It is based on forty-six of the cases, as one patient absconded from the hospital before clinical features could be determined.

4. In this connection we may say that the powers of the state factory inspection department, limited as they are to the reports of factory physicians only and then to a certain few poisonous industries, do not permit of aggressive investigations of this sort.

5. See Bull. Ill. State Depart. of Fact. Inspect., October, 1913, and April, 1914, i, 1 and 2.

TABLE 3.—PRINCIPAL SYMPTOMS IN FORTY-SIX CASES OF PLUMBISM

	Per Cent.		Per Cent.
Colic	98	Basophilic degeneration	43
Constipation	91	Headache	42
Lead line	80	Albumin and casts	29
Vomiting	78	Multiple neuritis	27
High blood-pressure*	75	Wrist drop†	18

* Determined in only 16 cases. In no case was it less than 125 mm. Hg, but in 12 cases it was more than 100 plus the age in years.

† The detection of lead paresis, preceding paralysis, can be made early, in the case of the arms, by the use of the hand dynamometer (Hayhurst, E. R.: Critical Examination of One Hundred Painters for Evidences of Lead Poisoning, Am. Jour. Med. Sc., 1914, cxlvii, 788).

The high percentage of lead lines shows quite conclusively that many cases without lead lines were not diagnosed as plumbism, since this sign is certainly not present in over one-third of even acute cases. Most lead workers are instructed and have learned to take "salts" regularly and as a result do not suffer much from colic, constipation, vomiting and headache, but they do suffer nevertheless from chronic plumbism as is shown by weakened neuromuscular function, blood-pressure determinations, facial pallor, impaired nutrition, affected kidneys, hardened arteries and fundus oculi examinations.

Analyses show that a total of 530 patients were engaged in processes which exposed them to lead in its various forms. As mentioned above, but forty-seven patients were industrially poisoned in the scrutiny of the histories of these cases. Among the balance we cite below the details of ten selected cases. Space alone limits the publishing of many times this number. I do not question the diagnoses made, necessarily, but wish to comment on their incompleteness. (The hospital diagnosis is given first, with civil statistics, and some of the symptoms; then the results, in briefest form, of our own investigations in connection with each case.)

CASE 1.—*Aortic Aneurysm.*—Laborer, aged 52, U. S., signs of aneurysm, with symptoms of angina pectoris. Symptoms beginning four months previously. Found to have worked for the past three years in a lead factory, inordinately exposed to lead. This case ended fatally, presumably by rupture of the aneurysm. Four and one-half months in the hospital.

CASE 2.—*Alcoholic Neuritis and Nephritis.*—Painter (general), aged 40, U. S. Found to have had an attack of acute plumbism two months before, with wrist-drop. Had his first attack twelve years before.

CASE 3.—*Musculospiral Paralysis and Multiple Neuritis.*—Laborer, aged 32, Pole, double wrist-drop, blue line, basophilic degeneration. Found to be a lead worker. Later sued his employers for his condition. How much the hospital diagnosis will help or hinder his suit is left to the reader to conjecture.

CASE 4.—*Arteriosclerosis.*—Painter (general), aged 54, U. S. History of several lead-poisoning attacks and in the hospital but a few months before for "lumbago."

CASE 5.—*Constipation.*—"Iron molder"—such was his regular trade, but he worked in a paint factory for one week, putting paint in cans—aged 38, Pole; symptoms acute. Stated that the work-room was filled with dry paint dust, and that masks were "more or less" constantly worn.

CASE 6.—*Pus Appendix,* gangrenous (diagnosis made by abdominal section). Russian, aged 31. Within the past year a farmer in Russia. Sick for past four months. Found to be a white lead molder, and made great complaint of the amount of lead fumes and dust he was compelled to breathe. Place of employment the same from which four other cases of lead poisoning had come to this one hospital within the period of our observations.

CASE 7.—*Chronic Rheumatism and Acute Uremia.* Painter (general), aged 60, Irish. Sick for past two months. Entered

hospital in semicomatose condition with convulsions. Found to have had lead colic as far back as twenty years previous.

CASE 8.—*Catarrhal Jaundice.*—Laborer, aged 28, Greek. Sick twenty-one days—colic. Found to be a lead smelterer, and from the same place where several other positive cases of lead poisoning occurred, several of the patients entering this hospital within the past year. The firm is an old offender.

CASE 9.—*Neurasthenia.*—Painter, aged 42, Hungarian. Complaint, abdominal pain. Had similar attacks off and on for the past four years. Found to be a passenger car painter, and complained of breathing paint dust. There have been many cases of lead poisoning reported, both at this hospital and elsewhere, among his fellow workers.

CASE 10.—*Paratyphoid Fever.*—Battery assembler, aged 23, Lithuanian; abdominal colic; blue line. Found to work in a storage battery factory exposed to much lead dust. Also had all symptoms of lead colic eight months previous.

This series illustrates how easy it is for primarily occupationally diseased patients to be lost sight of in terminal complications; the necessity of going deeply into the exact occupational risks which the patient has endured, and the lack of significance of the term "laborer." Furthermore, these cases emphasize very well the social waste in continuing to treat, and failing to diagnose etiologically cases which keep coming from the same sources, trades and callings year after year.

Industrial *arsenic* poisoning is not frequent in Chicago, yet the three cases noted above were hardly one-fourth of the total in this one hospital; another ten cases (all acute), which we could discover, were termed "dermatitis," "eczema" and "acute gastritis." In this connection it is well to state that in several instances these patients gave their previous regular occupations, such as "boilermaker," "electrician" and "jeweler," instead of mentioning their recent arsenic-industry employment, when questioned by the hospital entry clerks.

The three diseases given in Table 4 were correlated with occupations of the patients; the figures give the numbers which were in whole or in part occupational in character.

TABLE 4.—OCCUPATIONAL CASES IN THREE DISEASES

	No. of Patients
Chronic nephritis	265
Rheumatism (various forms)	417
Organic heart disease	333

In the case of the latter disease it is well to mention the efforts now being made in New York and at Cincinnati to select proper forms of work for such patients after discharge, in order to prevent occurrence and recurrence of non-compensation and consequent return to hospitals.

No cases were recorded of *pneumonoconiosis*, or of its various forms, as *siderosis, chalicosis, aluminosis*, etc., although there were a total of 134 cases of *chronic bronchitis* without efforts at etiologic diagnosis.

There were recorded 229 cases of *arteriosclerosis*. Unfortunately an idea of the extent to which fatigue-substances, heat-toxins and extrinsic poisons of industrial origin may have entered into this class of cases can rarely be gained from present-day histories anywhere; hence any idea of using the information for shutting off the oncome of such cases is at once precluded. They are all charged apparently to the account of moral hazards, or disease misfortunes.

There were 156 cases of *neuritis* of various types. While the preponderance of alcoholism and drugging as causal may be admitted, each should be searched for the likelihood of industrial poisoning, both extrinsic and intrinsic. For example, multiple neuritis occurs at a given rate among all alcoholics, but among those exposed to lead it is unusually common. We did not find time to go into these.

There were 157 cases of *neurasthenia* for which no other cause could be found than exhaustion, and we know that every effort was made by diagnosticians to keep this number minimal. Why should not the cause of such exhaustion be inquired into with the idea of naming it etiologically, and, if industrial, as it probably is in 90 per cent. of the cases, of recording it as *occupational neurasthenia?* If each such case were looked at from this point of view, corrective agencies would have a case to investigate.

There were twenty-eight cases of pes planus, fifteen cases of tetanus, and numerous cases of skin disease, heat exhaustion, neuralgia, uremia, etc. Here and there was a mention of work etiology, but the mention was productive of nothing. In fact, it was lost sight of entirely through the absence of a heading in the filing system under which to place "occupational complaints." It is largely on this account that so few occupational diseases can be found in institutional records anywhere (they are nearly all alike in this respect) when one intuitively feels they are omnipresent, especially if any field work has been done in industrial health-hazards.[6]

During the course of the year 1913, there were in the hospital *2,230 adult cases of tuberculosis* (I understand that not over 50 of these were "repeats"), 1,800 males and 430 females. One may safely say that practically none of these had active tuberculosis at the age of 14 years! The question is, Why and how have they acquired it since? How many of them would have it now had they lived an agrarian existence, for instance? The predisposing causes of their tuberculosis may be placed under three heads: (1) moral hazards, (2) domestic or housing hazards, and (3) industrial hazards. These three factors operating, perhaps, in unison have caused either a reawakening of latent childhood infection, or have invited environmental infection. Without disregarding the importance of the first two hazards, I am of the opinion that the importance of industrial hazards has been greatly underestimated in almost every case, and that it is useless to fight tuberculosis unless the daily eight to twelve hours vocation be investigated and supervised. The so-called "occupations" under which these 2,230 tuberculous persons were registered give practically no information of value. For this, it would be necessary to individualize cases. The records show one thing which is certain, however—that *they keep coming*, and very largely *from the same environments*. One important analysis shows that there was a total of 672 medical patients in the hospital engaged in dusty trades, of whom 284, or 38 per cent., were tuberculous. This is almost double the general tuberculosis rate among the medical (adult) cases in the hospital (20.2 per cent.). For "laborers," as a class, the percentage of tuberculosis was 23.3 per cent.

A principal feature in all these cases is to determine exactly the occupations. The principal result should be an etiologic diagnosis as far as possible, including the use of qualifying terms such as "bronchitis, occupational," "neuritis, chiefly occupational,"

6. Several excellent text-books have recently appeared on occupational diseases and industrial or vocational hygiene which discuss the various hazards of each calling.

"aortic aneurysm, probably occupational," "nephritis—alcoholic and lead," etc. This is similar to uses elsewhere, as seen in such descriptive terms as *puerperal* sepsis, *tuberculous* pneumonia, *typhoid* fever and diabetes *mellitus*.

It must not be forgotten that patients themselves are densely ignorant of what constitute health-hazards; that they calmly accept them as a matter of course, and unworthy of notice; that the competition for work is great; and (one comes to realize) so much greater than everything else is *the innate desire in man to work*—a desire which, in the normal man, equals his appetite and seeks to be satisfied in spite of all conditions.

SUGGESTIONS FOR THE SOLUTION OF THE PROBLEM OF OCCUPATIONAL DISEASES

The health-hazards of industry which cannot be feasibly removed are insignificant in number.[7] The best proof is the fact that certain establishments engaged in the industries and processes in question have circumvented such hazards, and invariably to the improvement of production, as well as labor attitude and relations.

1. First, there is needed a nomenclature to designate properly what is meant by "occupation." No one word will do this. The word "occupation" as used in medical parlance, hospitals, institutions, anti-tuberculosis society records, etc., should be abolished absolutely. A little study of some of the application blanks of insurance companies, particularly those carrying sickness insurance, offers many suggestions to framers of history sheets, social statistics, nurses' records, etc. After considerable study, and several years of field and statistical experience with this question, we have evolved and are using a scheme to take the place of the word "occupation" as outlined in Table 5.

TABLE 5.—SCHEME TO TAKE THE PLACE OF THE WORD "OCCUPATION"

INDUSTRIAL RELATIONS
(AS STATED BY THE PATIENT)

	Present	*Past*	*Previous (to Past)**
1. Name of employer			
2. Address of employer.....			
3. Business of employer			
4. Calendar years worked here..			
5. Department(s) worked in....			
6. Particular process(es) engaged in			
7. Health-hazards† exposed to...			

* For acute afflictions it is not necessary to go back beyond a few days or weeks, perhaps. For recurrent afflictions one should go back months or years. For chronic afflictions it is necessary to go back preferably five years or more. It is not to be expected that the busy entry clerk will fill out this record. It should be the duty of the history taker, oftentimes with the aid of an interpreter, and, if significant, even with outside assistance.

† Question "7" should be answered whenever there is any possible relationship between the patient's affliction and his industrial relations.

This is not dissimilar to what is ordinarily inquired into by the average insurance company. The question at once arises, Should not social and charitable institutions demand just as thorough an investigation of industrial relations as a sickness insurance company? Certainly the taxpayers of a community have a right to demand as much.

2. It is a serious handicap to many interests that there is to-day no logical classification of occupations in existence. To different persons the same term conveys quite dissimilar intelligence. With the information obtained from the use of the blank form given in Table 5, a *logical classification of occupations* may be attempted. While the names and addresses of employers are not necessary for the classification in question, they should be required on all institutional case-records as legitimate information pertinent to the care and supervision of the case. With the facts secured by Answers 3, 5 and 6, any given type of worker and all of his kind may be descriptively and distinctively classified. A scheme to classify occupations must collate "industry," "business department" and "trade process." It therefore requires three descriptive terms to do this. "Industry" must be considered, because, for example, a fireman at a zinc smelter-works is subject to considerably different hazards from those of a fireman in the boiler room of a public building; "business department," because, for example, a cook with a railway construction gang has considerably different hazards from those of a cook on a railway dining-car, etc. Let us apply this principle to a heterogeneous collection of workers (Table 6).

TABLE 6.—THE COMPLETE STATEMENT FOR "OCCUPATION"

Industry	*Business Dept.*	*Trade Process*
Pottery	Clay shop	Jiggerman
Pottery	Glaze room	Dipper's helper
Vehicle	Painting	Painter and sander
Agricultural implements	Painting	Dipping machine laborer
Iron and steel	Butt mill	Furnaceman
Brass	Foundry	Furnaceman
Iron foundry	Foundry	Laborer
General	Nondescript	Laborer

In this way it is possible to classify any one's trade or calling exactly. As in the case of "iron foundry," redundancies seemingly occur, but these are only apparent, for all the information obtained is necessary to exactly identify each worker's industrial application and environment.

It is not necessary for two persons to describe the terms exactly alike for a given case; nor, in the case of the same activities at two separate places, is it necessary to have descriptions identical, word for word. The information given under the three headings will invariably convey intelligence enough to enable a third person to comprehend fully just what is meant. The statistician is at liberty, furthermore, to enlarge the groups so as to come under the usual general industrial headings: agriculture, professional, personal service, trade and transportation, manufacturing and mechanical pursuits, and miscellaneous.

3. With the occupation definitely known and the health-hazards recorded, the weight of these in the affliction at hand can be estimated. The next step is to *investigate and verify* the patient's statements. Right here is where our system of social service fails. It is at present nobody's official business to attend to this. This function should constitute a part of the *statutory business of the community health department* whose findings, when positive, with recommendations and suggestions, should be given over to the proper (state) executive department. It should also become a corollary obligation on this health body to lead in the hygienic education of the workers, and to some extent of the employers, by drawing up rules and regulations to be observed by both of them and to be posted in workplaces as health-placards. This last function should not be hampered by having to wait for preparatory legislation aimed at each line of industry, as is now the usual manner of remedying such conditions. This power is just as much the rightful function of the health body as any of the offices

7. See Symposium on Ventilation, Jour. Indust. and Eng. Chem., March, 1914.

it now performs. *This power should be legalized and made mandatory on the health body.*

4. The enforcement of such regulations should depend, in the end, on the *compensation principle,* by which the employer will soon undertake to supervise his own plant, quite independent of the state's enforcement, as well as the health of his workers, both in and beyond the workplace, the latter on the now accepted theory that the employer has a right to demand "his money value for his expenditure for labor." Physical supervision, medical examination of employees, and a better selection of workers for the job will be the first effects of this system, while workers whose sicknesses are the results of moral or domestic hazards will soon be educated into line, or eliminated from industry. As industrial relations usually determine home conditions and habits, it would appear rational at all times to make an attack on delinquent social conditions at the place of employment.

SUMMARY

As a result of considerable study of hospital and dispensary cases and records, of vital statistics, and of field investigations, we reach the following conclusions:

1. Occupied persons, other than agriculturists, suffer an enormous mortality (figures show 74 per cent.) from well-recognized preventable and prematurely degenerative diseases.

2. Occupational diseases exist because industrial health-hazards exist. Responsible employers do not realize the existence of either, while treating agencies take little cognizance of employments.

3. From one-fourth to one-third of the medical afflictions of tradespersons are due in whole, or in great part, to industrial health-hazards.

4. In institutions, the vast majority of industrial diseases are lost sight of through failure to recognize properly the industrial relations of the patients, to make etiologic diagnoses, and to classify properly in subsequent filing.

5. Specific occupational diseases, such as lead poisoning, are not recognized in more than one out of three or four instances, more especially the chronic cases.

6. Present-day institutional records are of value only in showing the enormous numbers of representatives of groups of industrial pursuits who are below the physiologic normal, and who seek medical aid for preventable afflictions. Such records have little value to the student of economics.

7. A most important first remedy is a proper nomenclature for industrial relations to take the place of the word "occupation." Such a nomenclature is here propounded. The chief feature of this is the introduction of the term "industry-department-process" for the word "occupation." Adoption of this proposed term, furthermore, renders a logical classification of occupations possible. No such classification now exists.

8. The powers and functions of the community health-governing body should be extended to the prompt investigation of all industrial complaints, and to the prompt remedying of them without the necessity of preliminary legislation against certain alleged responsible industries.

9. In spite of the fact that the state in which this study was made has an occupational disease law, workers are still coming into its charitable institutions from the same types of trades, and in some instances, from the same manufacturing establishments, in even greater numbers than at a period three years previous, when the Illinois Commission on Occupational Diseases made its investigation. This, we charge, is most directly due to the non-existence of a correlating body between the hospital and the factory.

10. Too much importance is usually given to alcoholism, with a failure to appreciate that subjection to industrial health-hazards in itself induces and promotes stimulantism.

As a noted health officer has stated, many occupational afflictions might well be made the subject of a grand jury investigation, and others, of a coroner's inquest. The enormity of the public and private sums now spent on preventable sickness and death should induce those who pay the tax to bend every effort to run down these contributory factors and abolish them.

Acknowledgment is made of the valuable assistance rendered by Drs. Pauline R. Kapsa, C. A. Link, Alvin Thompson and F. B. Smith, of Chicago, in the accumulation of statistics and material contained herein.

CLINICAL CLASSIFICATION OF ETHMOIDITIS*

E. M. HOLMES, M.D.
BOSTON

As a result of the efforts of many observers during the past quarter of a century, we have acquired considerable knowledge concerning the inherent and associated pathology of the ethmoid cells. The clinical study of these cells is still of great importance, for by the knowledge thus obtained we are better able to judge of the macroscopic pathologic changes observed by direct inspection and by the aid of endoscopic instruments. Endoscopic examination of the nose enables us to inspect recesses which are otherwise hidden or at best only poorly observed. There is great need of study in this direction, for many of the findings are more positive than can be obtained in any other method. The roentgenogram is an aid which is of much service in some cases of ethmoid disease. It may give a working knowledge of the arrangement and size of the individual cells and it may be of considerable help in demonstrating the coexistence or the absence of associate sinus disease. We have also made considerable progress in our ability through surgical and medical means to relieve local pathologic conditions—those due to extension into adjacent structures, and also those due to reflex nervous impulses. From a clinical point of view there is still need of much research into the pathology and treatment of this region. We are in need of more uniform nomenclature and there must be a better understanding in regard to the best procedures, medical and surgical, for the relief of the various conditions with which we have to deal.

It is important that we do not forget that the ethmoid with the middle turbinate performs two very important functions. The air-spaces within the ethmoid act as non-conductors of heat and cold as well

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

as other irritations, and through this structure the orbit and its contents are protected from the frigid currents of air which are inhaled during cold weather and which without this non-conductive barrier would come into close contact with these delicate structures. The restriction of the superior and middle fossae of the nose by the ethmoid with its middle turbinate and covering of erectile mucous membrane provide for the warming and moistening of the inspired air before it enters the throat and passes into the lower respiratory organs. When for any reason the middle turbinate and lower wall of the ethmoid have to be sacrificed there results a deformity which practically produces all of the ill effects of mouth-breathing. The inspired air is not sufficiently warmed or moistened and there almost always follows a chronic dry pharyngitis and a chronic laryngitis. Frequently the trachea and bronchi suffer in like manner as the upper respiratory organs. These patients almost always suffer from orbital as well as nasal disturbances whenever they are subjected to the influence of cold or dry air or to air contaminated with irritating dust or gases.

I am devoting considerable space to these preliminary remarks concerning the physiologic functions of the ethmoid and to the resulting disturbances when for any reason this structure has to be sacrificed, as it is of the utmost importance when we take up the study of this subject in the concrete. Were it not for the great importance of this structure, the clinical significance of our study would be reduced to a simple operative procedure. There would be nothing gained by the expenditure of time and energy in trying to differentiate between the infections of the various cells of the ethmoid or of the middle turbinate, for it would be easier to remove all of the turbinate together with the nasal wall and trabeculae of the whole ethmoid. With our present knowledge, the most important thing is to ascertain, so far as possible, the degree and extent of the existing pathologic conditions, to learn of the duration of the disease and whether there have been previous attacks, to consider the inconvenience of the existing ethmoid disease to the patient, the degree of extension into other structures and the inconvenience as well as danger due to this extension. It is likewise of great importance to consider the patient's general condition, his hygienic surroundings, his habits and previous treatment, if any. After having gone over the individual case, unless we are sure that the whole ethmoid structure is beyond repair, I believe it is our duty to make the patient understand that it will give better results in his case to save all the nasal structures possible and tell him that in trying to obtain this final result several operations may be necessary. After this understanding, we should do only what we believe to be essential to accomplish the results and follow this up with suitable treatment, resorting to further operative interference if found necessary. We cannot make this point too strong because it is so easy to be led into extensive radical exenteration; and it is impossible to restore structures once removed or to overcome the symptoms frequently resulting from this extensive loss of tissue. In extensive ethmoid diseases it may be absolutely impossible to stop the progress or to give relief without thorough exenteration. When we are able to prove that we are dealing with such conditions it would be folly to attempt what would ordinarily be conservative treatment. The most thorough exenteration is none too radical and must be advised.

The ethmoid cells are intimately associated and are practically a part of the labyrinth of cells beginning anteriorly with the frontal and ending posteriorly with the sphenoid. Through their drainage they are also more or less intimately associated with the large inferior orbital cell, the maxillary antrum. In dealing with the ethmoid cells—from an etiologic, a diagnostic, a prognostic and a therapeutic point of view—we have to consider carefully the frontal and sphenoid cells and also the maxillary antrum. The symptoms are frequently exaggerated by those arising from a coexisting frontal, sphenoid or maxillary disease, or they may be simulated by disease of these associated areas. Again, disease of the maxillary may be simulated or produced by the discharge of a diseased ethmoid into its cavity.

Irritation of associated nerve filaments, especially the dental, may produce symptoms of pain and sometimes hypersecretion of mucus within the nose which naturally suggests infection and may lead to a wrong diagnosis unless much care is exercised.

Clinically, we see a number of pathologic conditions within the ethmoid. These conditions vary in intensity and produce varying and various degrees of symptoms. These symptoms are not necessarily a guide to the severity of the pathologic process. The anatomy varies considerably and this variance is an important factor in the production of the symptoms and in the progress of the pathologic processes.

Although it is clinically impossible to classify satisfactorily the pathology of the ethmoid, for the purpose of more easily presenting the clinical aspect, we can first divide it into two classes, the purulent and the non-purulent. The purulent may be either acute or chronic. The non-purulent may occur as an acute inflammatory, a chronic inflammatory, a degenerative (polypoid and atrophic), a syphilitic, a tuberculous or a neoplastic. The purulent or non-purulent types may occur independently or may be associated. The acute inflammations are extremely common and are usually associated with attacks of acute general rhinitis. The majority are self-limited. They are often the most difficult to diagnose as the symptoms are frequently the only real guide, and when the drainage is not materially obstructed the symptoms may be so slight that the condition is overlooked. When there is associated purulent secretion which can be observed coming from some of the ostia, the diagnosis is easier and more positive, but more frequently the secretion if excessive is mostly serum and it is practically impossible to state positively from what area it is coming. It spreads out over the mucous membrane of the turbinates and fossae and discharges from the nose anteriorly or into the epipharynx posteriorly.

The symptoms in this condition are usually not severe until some of the channels of escape become blocked by the swollen mucous membrane. When there is a blocking of excessive secretion from the ethmoid cells there arises a sensation of fulness and heaviness within the head and there begins a more or less severe pressing pain which radiates from the eye and often extends into the temple, the parietal, and sometimes into the postauricular areas. All the visible mucous membrane within the nose is usually infected and more or less swollen, as the results of the infective process usually spread over quite an extensive area.

The important objects to accomplish are first to relieve the distressing symptoms and to relieve pressure within the bony encased areas so that normal cir-

culation may be established and the inherent vital forces given a chance to combat these infective elements and restore normal conditions as quickly as possible. The more rapidly and perfectly this takes place, the less liable is there to be a weakened resistance or a chronic termination. Though 70 per cent. or more of the acute inflammatory processes within the ethmoid cells are self-limited and result in cure without any interference, the knowledge that the others are liable to become chronic and may become extremely severe, producing not only local distress but also general infirmity, should make us very careful in studying and treating all the patients who come to our attention. It is important that the general condition of the patient receive immediate and appropriate treatment. The gastrointestinal tract must receive attention and the patient should be protected from exposure and fatigue.

Locally, much can be gained from a diagnostic point of view by a systematic application of cocain about the ostia which naturally drain the various accessory cells. In order to gain positive knowledge, it is advisable to use a very small cotton-tipped applicator saturated with 5 to 10 per cent. cocain solution, and to carry this directly to the anterior portion of the middle fossa under the tip of the middle turbinate. The patient's head should be inclined forward. If after a few minutes the distressing symptoms are relieved we can reasonably assume that the principal cause of the trouble is the anterior portion of the ethmoidal labyrinth or within the frontal sinus. At least the main object of our research, the relief of the pressure and faulty drainage has been obtained, and if this can be maintained our patient is nearly always started on the road to recovery. If this first application gives only slight or no relief, the next application should be made at the posterior end of the middle fossa where the posterior cells are liable to communicate with the nose. After this procedure the floor of the nose can be anesthetized and a thorough endoscopic examination made.

In acute cases in which cocain and epinephrin establish drainage and give relief to the symptoms, the local use of these with the addition of argyrol is usually sufficient to effect a recovery in a comparatively short time. There are cases with acute onset in which we cannot establish drainage and give relief by local application, and more radical interference may be necessary. These cases may be annoying as we realize the great necessity of preventing serious advance and destruction of tissue and the desirability of sacrificing as little of the nasal structure and function as possible.

If the site of the disturbance seems to be in the anterior group of cells, an excision of the extreme anterior portion of the middle turbinate may be advisable and the anterior internal wall of the bulla ethmoidalis may be removed. The temptation is to use the curet extensively within the spongy cells, but this must be resisted until such time as we are reasonably sure that it is absolutely necessary.

Chronic suppurations of the ethmoid vary much in degree and in severity of symptoms. The purulent secretion within the nose is frequently very annoying, and that which flows backward into the epipharynx and into the pharynx may be very distressing when profuse, and extremely disagreeable when it is retained and forms decomposing crusts. The irritation of the mucous membrane within the nasal chambers with the resulting swelling frequently impedes the passage of air. There is often pain over the bridge of the nose or radiating from the nose to the temporal region. There are at times disturbances within the orbit. Frequently the complications within the epipharynx and eustachian tube produce the only severe symptoms. Quite often there is more or less enlargement of the normal cellular spaces because of retention of hypersecretion, and frequently these cells become much distended. This is especially true of the middle turbinate. When the condition is at all advanced, the cystic turbinate obstructs the nasal passage and produces the symptoms due to obstruction. The chronically inflamed ethmoid when subjected to excessive pressure from retained secretion frequently becomes necrotic. If this necrosis happens to break down the cell walls so as to produce good drainage, the process is occasionally self-limited. This is not, however, the general course of events. There usually develops more or less profuse granulation-tissue which tends to retain the secretion, and unless aided by surgery the process slowly advances. In this condition the middle turbinate may become so cystic and enlarged as practically to fill the superior fossa and obscure from our direct or endoscopic inspection the middle and superior fossae of the nose. Pus may be seen in the groove about the turbinate, but it is impossible to determine its original source. Sometimes much can be gained by crushing the turbinate with forceps, as sufficient space may be gained to be able to inspect the middle as well as the superior fossa. When there is sufficient space to obtain a good endoscopic view we can frequently determine the extent and location of the disease. The increased space obtained by reduction of the turbinate may enable direct treatment and a cure may result with little sacrifice of tissue and slight, if any, loss of function. When there is extensive degeneration and necessarily much loss of structure we can hope for relief but not a restoration of a normally functioning nose.

Polypoid formation as well as the hypertrophic inflammatory processes may begin as very circumscribed conditions and without purulent manifestations. Polypoid formation may exist for years and become very extensive without becoming purulent. While examining the nose with the endoscope we not infrequently discover small polypi within the middle fossa under the middle turbinate which have given no symptoms and might cause none until they had become large enough to appear below the turbinate. So far as the ethmoid is concerned, the mucous polyp is practically a malignant manifestation. Unless there is thorough removal of the growth together with the adjacent structure, there is almost sure to be a return of the condition. Little can be expected from a simple snaring of the polypoid mass, and in advanced cases permanent relief can be hoped for only through a radical exenteration of the ethmoid.

Syphilitic disease of the ethmoid may at first appear as a simple acute or a subacute inflammatory process. Later it may give symptoms and show the signs of a purulent ethmoiditis. It is important in all ethmoid disease to consider and estimate, if possible, the possibility of syphilitic infection. When there is a possibility of the ethmoiditis being due to syphilitic extension, surgical interference should never be resorted to until after thorough antisyphilitic medication.

Neoplasms of the ethmoid other than polypi are very rare, and when discovered are frequently beyond eradication. Whether of the sarcomatous or carcinomatous type they are usually friable and very vascular. Any soft vascular tumor within the nose should arouse suspicion and receive immediate attention.

The technic of the various operative procedures is so well known that it has not seemed necessary to consider the subject here. It is also very difficult to deal with this subject in a conservative manner without being misunderstood. In certain cases the most radical procedures are really conservative, and were it not for the importance of the surrounding and associated organs they should be made even more radical. It is so much easier to perform a radical operation than to be obliged to perform perhaps several less thorough ones that inasmuch as the radical measures sacrifice more of the physiologic functions it is our duty to refrain from great sacrifice of tissue unless we are reasonably sure that other so-called conservative measures will not suffice.

531 Beacon Street.

PATHOLOGY OF THE ETHMOID LABYRINTH*

G. E. SHAMBAUGH, M.D.
CHICAGO

In this consideration of the pathology of the ethmoid I shall take up only some of the more common pathologic conditions which have come under my own observation and discuss the clinical symptoms by which these conditions can be recognized.

The most frequent pathologic condition involving the ethmoid labyrinth is acute catarrhal ethmoiditis. This develops as a frequent sequel to an acute coryza. The changes in the mucous membrane covering the ethmoid which are characteristic of this condition can often be observed by an examination of the middle meatus where the ethmoid labyrinth comes more or less clearly into view. In these cases, by inspection we can recognize along the under surface of the middle turbinated body, along the unciform process, and along the exposed surface of the bulla ethmoidalis, an edematous-like swelling of the mucous membrane. Occasionally we observe in this acute form of ethmoiditis the formation over the exposed part of the ethmoid of small mucous polypi, which tend to disappear spontaneously on the subsidence of the acute process.

The occurrence of acute catarrhal ethmoiditis can usually be recognized from the symptoms, which are the result chiefly of impaired ventilation and drainage of the ethmoid cells, occasioned by the swelling of the mucous membrane. The patient experiences a characteristic sense of pressure and fulness, or even of pain, between the eyes. There is a profuse discharge of mucous into the nose and, as a rule, a great deal of sneezing. The latter symptom is more or less characteristic of impaired ventilation of the ethmoid and is perhaps the most characteristic symptom of the chronic hypertrophic form of ethmoiditis.

An occasional sequel of acute catarrhal ethmoiditis is the occurrence of a closure of an ethmoid cell, with retention of secretion, over a considerable period. It is associated with a sensation of fulness or pressure in the region of the ethmoid. Very often the condition is relieved, after it has existed for a few weeks, by the spontaneous discharge of a quantity of a lemon-yellow or straw-colored fluid from the nose. More rarely the condition persists as a chronic mucocele, with a gradual distention of the ethmoid cells, sometimes toward the nasal chamber, at other times toward the orbit, through the orbital plate of the ethmoid.

An acute purulent involvement of the ethmoid labyrinth, acute empyema, is not so common. In these cases the profuse discharge of pus into the nose may be associated with a great deal of pain, caused primarily by impaired drainage from the ethmoid cells. The result of the impaired drainage is the same in the acute empyema of the ethmoid as when this condition develops in acute empyema of the mastoid; the bony framework becomes involved. With the softening of the bony walls of the ethmoid there is likely to develop an extension into the orbit and, finally, an external fistula, which is usually located either just above or just below the inner canthus of the eye. When the ethmoid bone becomes involved in cases of acute empyema of the ethmoid the process is certain to persist as a chronic empyema unless the diseased bone is thoroughly removed by operation.

Of the chronic pathologic conditions involving the ethmoid, the most common and often the most troublesome form is chronic hypertrophic ethmoiditis. This is primarily a non-suppurative disease, but with the impaired drainage of the ethmoid cells, which the hypertrophy of the mucous membrane produces, the condition may become the seat of a secondary suppuration which persists after an acute infection as a chronic empyema.

The first change that takes place in the hypertrophic form of ethmoiditis is in the mucous membrane, which undergoes a polypoid degeneration. This involves the mucous membrane lining the ethmoid cells, as well as the covering of the nasal wall of the ethmoid, especially the unciform process and the bulla ethmoidalis. Later, the ethmoid bone itself becomes involved. The changes in the bone are the result in part of reabsorption of the bone, and in part of newly formed bone, the former, as a rule, predominating. The symptoms by which the hypertrophic ethmoiditis can be recognized are quite characteristic. The patient complains of symptoms of almost continuous acute head cold, attacks of sneezing associated with profuse water discharge from the nose, sensation of fulness and pressure between the eyes, etc. A careful examination of the middle meatus is often necessary before one can detect the characteristic polypoid degeneration over the exposed surface of the ethmoid. It is not always possible to determine the extent of the process involving the ethmoid by the changes observed in the middle meatus. Very often one detects only a few small polypi under the middle turbinate, when an opening of the labyrinth discloses an extensive polypoid degeneration of the membrane lining the ethmoid cells. The hypertrophic form of ethmoiditis is not infrequently a part of a diffuse hypertrophic process involving the lower turbinate bones as well.

The chronic empyema of the ethmoid cells occurs usually as described above: first, by the persistence of an acute empyema, because of the involvement of the bony framework when the drainage has been seriously impaired; second, by an acute infection taking place in the presence of a hypertrophic ethmoiditis—here

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

the impairment of drainage keeps up the process as a chronic empyema.

There is a chronic atrophic form of ethmoiditis seen, as a rule, in connection with a general atrophic process throughout the nose. In these cases, the atrophy apparently begins in the mucous membrane of the ethmoid, but, just as in the remainder of the nose, this atrophy is associated with atrophy and shrinking of the bony framework. This atrophic process is, as a rule, bilateral, but it is not uncommon to find the disease limited chiefly to one side of the nose. We see it developing on the side where a deflected septum has produced a roomy nasal passage, as well as on the more obstructed side. It is in these unilateral cases especially that we should suspect some circumscribed process, such as a focus of pus in the ethmoid labyrinth, as the cause of the atrophy. This conclusion is borne out by certain cases in which circumscribed suppuration of the ethmoid is associated with an area of atrophy restricted to the immediate region of the ethmoiditis. I have seen a circumscribed area of atrophy in the recessus spheno-ethmoidalis in which chronic empyema of the sphenoid was found unassociated with any involvement of the other nasal accessory sinuses.

The cystic enlargement of the middle turbinated body and of the bulla ethmoidalis are often described as pathologic conditions. While it is true that these structures may be the seat of a mucocele which is causing them to enlarge, the enlargement is usually in the nature of an anatomic variation. These variations are quite common in the formation of the ethmoid labyrinth. It is not unusual, for example, to find a large ethmoid cell developing in the floor of the frontal sinus, or for an unusually large cell to develop at the expense of the other ethmoid cells. The aberrant ethmoid cells which occasionally develop in the middle turbinated body may become the seat of a chronic inflammatory process, just as may any other ethmoid cells. In most of the cases of cystic enlargement of the middle turbinated body the cell is free from any secretion.

Tertiary syphilis not infrequently involves the ethmoid, with extensive bony necrosis. In these cases the orbit is usually sooner or later involved and an external fistula forms in the region of the inner canthus.

The development of a primary malignant growth in the ethmoid labyrinth is occasionally observed. The first symptoms in these cases are likely to be those produced by a secondary involvement of the orbit, while in the nose there may be relatively little to indicate the serious character of the disease.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HOLMES AND SHAMBAUGH

DR. ROSS HALL SKILLERN, Philadelphia: In 1909 when Uffernorde first brought out his work on the ethmoid he laid particular stress on the idiopathic, hyperplastic form. That is the form, of course, of polypoid degeneration and polyp formation. Previous to that time we considered that all polyps springing from the ethmoid region were due to some form of sinusitis, generally purulent, and when Uffernorde made that statement it was received with opposition by his German colleagues. It was taken up here, however, and now has come into general acceptance in Germany as well.

Uffernorde's classification really failed to bring out anything new. Twenty-five years ago Bosworth brought out a classification in which he mentioned this hyperplastic form. He divided ethmoiditis into six forms, and while some of these varieties were but different degrees of the same condition, nevertheless he anticipated Uffernorde in mentioning this distinctive form and so the priority belongs to an American. For operative purposes we can divide the condition of the ethmoiditis into the hyperplastic, the suppurative and a combination of these two. The hyperplastic may be extracapsular, the polyps being outside of the capsule without the cells being affected. The suppurative form may include one or more cells. As a rule, the suppurative ethmoiditis is limited to the anterior or posterior cells. Except in the atrophic form, suppurative ethmoiditis of the whole capsule is not frequently met. We may have a combination of these two forms, of course. The question has been raised whether the polyps cause the sinusitis or the sinusitis the polyps. It has been shown that when these conditions are in combination they are dependent on one another. There is an idiopathic form, in which pus never occurs, and again cases occur of the worst kind of purulent sinusitis in which polyps have never been seen.

This new operation has its place in certain conditions, the principal of which is when the middle turbinate lies close to the lateral wall of the nose, when it is going to be hard to infract the turbinate and get underneath it. Dr. Mosher short-circuits the whole thing. He makes a hole in a definite place where certain things are to be found underneath. At present the way we operate on the ethmoidal labyrinth is first of all to attack the uncinate process which stands out in front of the ethmoid capsule, sometimes from 0.5 to 1.5 mm. We break that down with the hook; that gives us this extra distance. The bulla is directly in front and we can easily resect it. In the past in operating on the ethmoid we failed to have a sufficiently clear idea of just what we proposed to do when we started out. We should be in the same state of mind as the general surgeon when he starts an exploratory operation in the abdomen, for example. He opens the abdomen but doesn't know exactly what he is going to do. We say, "Well, we will go in and take out the polyps and make a nice clean passage," but we know they are going to return sooner or later. Now if we make up our minds when we begin that we are going to take out these polyps and see what is underneath, and if necessary continue further back, we will be doing a more satisfactory operation. If we have definitely in view that we are going as far as the indications warrant, we will do better work and get better results.

DR. OTTO T. FREER, Chicago: Deep hyperplastic ethmoiditis, as I have found it, is more inclined to involve the anterior ethmoidal cells than the posterior, but may include the entire ethmoid labyrinth. In marked cases the middle turbinated body and all of the cell-walls except a few remaining spiculae of bone are absorbed and the lateral mass of the ethmoid bone is replaced by polypi tightly packed in a space bounded outwardly by the orbital plate, above by the cranial plate over the ethmoid cells and internally by the nasal septum. In such extensive cases, not rare, Dr. Mosher's landmarks are lost, but nature furnishes a guide in the form of the polypi and softened bone, the operator knowing when he has reached the boundaries of the disease because his curet encounters firm, hard bone. I employ Grünwald's sharp spoons, the Grünwald punch with its wide mouth, and also ring curets, as the ring form cuts best. It is necessary to curet not only to the orbital plate but also forward and upward toward the frontal sinus, as the frontal cells (Killian) are nearly always involved, blocking the outlet of the frontal sinus, so that, after their removal, the operator nearly always finds himself in the frontal sinus and close under the cranial plate. After the operation a large cavity is seen above the lower turbinate with hard walls and free from polypi. A consideration of the anatomy of the region, as given by Dr. Mosher, will show how great the need of caution is in deep operations on the ethmoid bone. The

dangers of the operation are penetration of the orbital plate, penetration of the cranial plate over the ethmoid cells and entering the antrum of Highmore. The latter accident is usually without consequence, though acute maxillary sinusitis may occur. In two cases related to me by colleagues, penetration of the orbit was followed by blindness, the cause, in one case, being hemorrhage into the orbit; in the other, orbital abscess. To avoid such accidents the curets must be sharp so that they may be used without force and nothing must be done without the aid of sight. Working cautiously with curet and punch, and taking his time, the operator need not fear disaster.

DR. GEORGE F. COTT, Buffalo: Dr. Mosher's operation is one of the neatest, cleanest, best operations for draining the ethmoid cells that has ever been proposed. In latent sinusitis many pathologic conditions occur, producing great discomfort to the patient, as rhinorrhea, excessive sneezing, etc., with apparently no affection of the sinuses. That is in the latent stage, in which there is no pus, perhaps no mucopurulent discharge, but if the cells are opened and cleaned out often almost immediate relief is obtained.

DR. W. W. CARTER, New York: I do not think we should ever operate in acute ethmoid inflammation unless there is distinct evidence of pus under pressure. With regard to chronic purulent discharge, we all know from the structure of the cells, the position of their ostia, that it is impossible for them to drain thoroughly unless an opening is made into them. The real indication for operation on the ethmoid should depend on the condition of the bony walls of these cells. It has been shown that one of the earliest changes in polypoid degeneration occurs in the vascular layer of the periosteum, that it is a passive hyperemia, producing an edema. The condition, therefore, of the bone is a pathologic one, and if the bone is diseased you must remove it. Therefore polypoid degeneration is a definite indication for exenteration. Since the introduction of the Mosher operation I have used it a number of times and have had excellent results. It has given me a confidence in operating in this region that I never had before.

DR. F. W. SEARS, Syracuse, N. Y.: I speak from the patient's point of view. I suffered for years from ethmoiditis, which had finally resulted in severe attacks of asthma. A number of operations were performed with practically no benefit. Finally a Baltimore specialist attempted to relieve the trouble by an operation under a local anesthetic, which did not relieve the ethmoiditis. The asthmatic conditions came on worse than ever during the following October. At that time Dr. Mosher, after having several roentgenograms taken, operated under a general anesthetic. I believe the anxiety and suffering from local anesthesia more than offsets the discomforts and dangers from a general anesthetic. The operation resulted in a complete relief from the asthmatic conditions and a rapid restoration to health.

DR. A. L. BURDICK, Lansing, Mich.: I was impressed by Dr. Shambaugh's remark in which he compared the ethmoid to the mastoid labyrinth. I do not know why this is not oftener done. I was called to see a patient who had fever and intense pain, and exophthalmos of the left eye. There was a history of chronic nasal discharge for fifteen years. On examination the condition was undoubtedly one of purulent ethmoiditis. Four hours later I operated and removed literally sacs of pus, the sacs made up of the lining of the ethmoid cells. After three hours the pain was gone and the patient was practically well. In this case there was abscess of the orbit, but it was not followed by blindness.

DR. G. W. MACKENZIE, Philadelphia: We may classify the condition into different types, but there are all grades of these different types and every case becomes individual. Conservative treatment is important for that reason. A patient came to me who had been operated on on the right side of the nose for frontal sinusitis, accompanied by maxillary sphenoiditis and more or less ethmoidal disease. It was on the concave side where there was a considerable deflection of the septum. I washed out each of these cavities and could find no involvement of the cells at this time. The patient, however, had an accumulation of mucopurulent secretion over the posterior part of the septum and more or less on the lateral wall. I cleansed it thoroughly and inspected the parts with the Holmes endoscope, which is advantageous in examining that region. After having assured myself by these methods that nothing was present, I sent the patient to two roentgenologists who made various roentgenograms, none of which showed positive indications of sinusitis. I then tried the experiment of plugging the right side of the nose with cotton sufficiently to filter the air breathed in this wide-open side. The patient reported the next day saying that he had no secretion. I tried the experiment several times and have since tried it in other cases, and I find that when there is sinus disease, on removing the cotton there is a jelly-like secretion and when no sinus disease exists there is practically no secretion. This led me in this case to do a septal operation with most favorable results.

DR. CHARLES R. C. BORDEN, Boston: I emphasize an important point made by Dr. Holmes. The second turbinate is a valuable structure and should be preserved as much as possible. In the early cases it is possible to save a considerable portion of it. Removing the anterior ends of the turbinate is poor surgery if it can be avoided. In cases in which simple drainage is desired I perform a modification of the Mosher operation, using a biting forceps in place of a curet. I have had several unfortunate complications following the use of a curet and consider it a dangerous instrument. It is a comparatively safe and simple procedure to open the anterior ethmoid cells at Mosher's point of election with a biting forceps, making a long narrow pathway through the body of the ethmoid until normal bone is reached. A little force is required to make the first bite, but after the cells are reached they cut away with surprising ease. One is often amazed at the large number of small polypi which will come away in the mouth of the forceps when none were suspected of being present. The curet usually fails in this respect, as that instrument simply pushes the polypi aside. Of course, in advanced cases, this method of procedure will not be sufficient. In the early cases, however, it not only provides the desired drainage, but removes the polypoid tissue and at the same time leaves a considerable amount of healthy tissue in place, which is desirable for the welfare and comfort of the patient. In the advanced cases I perform the Mosher operation, using both biting forceps and the curet as it is practically impossible to use the forceps alone. I have known several cases of meningitis to follow operations and great care is needed in doing them with any form of an instrument.

DR. JOHN O. ROE, Rochester, N. Y.: After listening to Drs. Holmes, Shambaugh and Mosher, one would naturally get the impression that operations on the ethmoid sinuses are simple procedures and that to enter the ethmoid sinuses and curet or cut away diseased tissues is comparatively free from danger. I therefore call attention to some of the dangers connected with these operations, especially in the hands of amateurs. Recently two deaths occurred in Rochester following nasal operations. These deaths, however, are not the only ones to be referred to, for the report of cerebral complications in nasal surgery are too frequent to be reassuring to the amateur, and it is only by those experienced in this line of work that such operations should be undertaken. I agree with Dr. Borden as to the advantage of biting forceps over the curet in many cases. When the walls of the ethmoid cells are quite thin and more or less fragile, the curet has its advantages, but in cases of more rigid walls, I have found the biting forceps much superior. For the anterior ethmoid cells I use the straight biting forceps, similar to those mentioned by Dr. Borden, but for entering the posterior ethmoid cells, I use forceps that I have had made, with cutting blades set at right angles to the shaft of the forceps, which I have previously described. In many of these cases we find marked enlargement of the turbinal cells of the middle turbinate body, completely blocking the central portion of the nasal fossae. In dealing with

these cells, I first determine their presence and extent by puncturing them at their anterior portion with a slender bistoury. In a large majority of cases, the knife will enter the cells freely, indicating at once the nature of the conditions we have to deal with. With the straight forceps the outer wall of these cells is taken away, then by fracturing and forcing outward the inner wall, the nasal passage at this point is made free, while at the same time a mucous membrane forming a covering for this outer wall, is preserved. Before entering the posterior cells with the rectangular forceps, or even with the curet, it is of the utmost importance to locate carefully the posterior wall of the nasal passage, particularly in the region of the cribriform plate. This I do with a slender flat probe, made of steel, the distal end 4.5 mm. wide and very thin. It will go where the round probe will not, and with it the exact location and condition of the parts can readily be determined. This little instrument I have found so exceedingly serviceable in all such work, that I have dubbed it "my long finger."

DR. H. WILSON, Detroit: If I do not err in my understanding of the essential nature of Dr. Mosher's operation, the use of biting forceps in exenterating the ethmoid labyrinth goes aside from the spirit of the operation itself. I recall no other nasal operation which is exactly the same as Dr. Mosher's. It depends for its success on the ability of the operator to visualize the anatomic and pathologic conditions that exist at the end of his curet. Without this, one cannot properly execute the operation. The ability that we possess to translate the impression we receive from biting forceps fails to meet the requirements of the operation. It seems to me, however, that that is the crux of the operation itself; that is what makes it different from all other ethmoidal operations. It begins at a different point and we know our landmarks from that point on. As to the serious results spoken of, no one has a right to perform such an operation who has not acquired this power of visualizing the anatomic structures he is engaged in operating on. Failure to be able to do this may be the cause of the unfortunate results that Dr. Roe and others have referred to.

DR. JOSEPH C. BECK, Chicago: It is important to amplify the gross pathology of ethmoiditis. The names of three men should be mentioned in referring to the pathology of ethmoiditis—Woakes, Uffernorde and Wright. Last year I presented at the meeting of the Laryngological, Otological and Rhinological Society the subject of the histology of ethmoiditis, in which I showed the varieties I had found in my own practice. The bone and periosteum show the greater change, except in the acute cases. There is a distinct difference between polypoid and inflammatory edema of the mucous membrane and it will make a great difference in the results of operation. In the hyperplastic form, imperfection of the bone and periosteum are essential points in the pathology, not secondary changes from infection; it is a degenerative process. It would be well for men to study their clinical cases and make a few sections showing where the disease is in individual cases. Two years ago this operation was demonstrated to me by Dr. Mosher. I went home and tried it on one side, the old method on the other. Now I use no method but his. If some one comes and tells us of blindness occurring in a certain case, thus putting a damper on such an operation, we should know who such operators are. It should not frighten expert men away from doing a good operation.

DR. LEE M. HURD, New York: Sometimes instead of the papery shell-like bone of the ethmoid we find it very thick, from 1 to 1.5 mm. of hard bone. In one case I could not get through. We find necrosis of the bone of the ethmoid cells of a non-specific nature at times and we do not get the condition well unless we exenterate the entire labyrinth. Taking out the polyps alone is like cutting the heads off dandelions. To get a cure we must do an exenteration. How does Dr. Mosher get at the prolongations of cells over the orbit? A straight curet will not reach these. I have been injecting Beck's paste into any remaining cells that cannot be reached at the operation and it seems to aid.

DR. E. M. HOLMES, Boston: I do not want to give the impression that I am opposed to operative procedures in the treatment of ethmoiditis. I thoroughly appreciate the work of Drs. Mosher and Skillern and others and am glad to see this operative improvement, but my paper was as I said, conservative, because we are seeing so much operative work, extensive exenteration, by men who are new at the work and who have not had sufficient experience. It is much easier for them to sacrifice all the structures in the nose than properly to study the case. All tissue which can be should be saved so that all the functions possible may be conserved. We all find cases in which polypoid degeneration extends to the upper and outer wall of the ethmoid cavity, even after thorough operation. It may be our duty even to remove a portion of the orbital plate.

DR. GEORGE E. SHAMBAUGH, Chicago: Perhaps the most interesting pathologic condition involving the ethmoid labyrinth is the condition first described by Woakes, which we now recognize as the non-suppurative hyperplastic ethmoiditis. It is often the most difficult to recognize and is the cause of the most troublesome and, in a way, the most interesting symptom. It is this form which is often associated with asthma. The early symptoms are those of recurring acute head colds, sneezing attacks, etc. I received a shock some years ago when Dr. Bosworth described his method of curing recurring acute head colds. He stood behind the patient and with an electric burr reamed out the ethmoid labyrinth. We now recognize that he was operating for the relief of symptoms caused by hypertrophic ethmoiditis. We are doing the same thing now, only not quite in the same way. The one thing most essential in operation on the ethmoid is that the operator have a clear conception of the anatomy of this region. Unless he understands this thoroughly he has no business operating. To my mind not the least important part of Dr. Mosher's work has been to get our men interested in acquiring a better knowledge of the anatomy of this region. I am accustomed, when operating on the ethmoid, to do the work under local anesthesia. I usually remove a part or the whole of the middle turbinated body; then with a Hartman nasal forceps I begin in front and break through one cell after another until the whole labyrinth has been exenterated. The work with the forceps requires but a few seconds to complete. If one direct the pressure outward, backward and upward, one keeps clear of the cribriform plate. For this reason I like to leave standing the mesial wall of the labyrinth. The roof of the ethmoid labyrinth is a firm bone, whereas the cribriform plate is very fragile.

DR. HARRIS P. MOSHER, Boston: We have many good methods of getting into the ethmoid, but we want, more than anything else, a better idea of the pathology of ethmoiditis. I have found that non-success in getting into the labyrinth easily in this way is often because the curet is not placed high enough up or far enough back. Dr. Skillern says go as far as the pathology in the particular case warrants. That is the right idea. Dr. Freer said that in many cases of degenerative process there are no landmarks; that they have been destroyed. Of course that is true, but if one has a systematic procedure to follow one will not be in danger. As to the use of biting forceps rather than the curet, I prefer the curet until I find out where I am, and then I use the biting forceps. I use it freely after I have secured orientation with the curet. As to the serious results spoken of, anyone who does work on the ethmoidal labyrinth without a proper anatomic and surgical preparation simply has no surgical conscience. I agree with Dr. Wilson that to be able to visualize the operation is the main thing. As to Dr. Hurd's question about the cells that extend out over the orbit, they are, as he says, difficult to reach; I simply do with them the best I can. Dr. Shambaugh says he leaves the middle turbinate. I use the middle turbinate as a landmark to keep me in the labyrinth and to keep me away from the olfactory fissure. Then when I have cleaned out the labyrinth I remove the middle turbinate to free the front face of the sphenoid.

I. THE SECTION ON STOMATOLOGY: ITS NEEDS, ITS DUTIES AND ITS OPPORTUNITIES. II. THE FIELD OF STOMATOLOGY*

WILLIAM C. FISHER, D.D.S.
NEW YORK

I. ITS NEEDS

I do not think there has ever been at any time in the life of this Section any question as to the quality of the membership or of the caliber of their intellect, but I do know that the numerical strength of our membership and more particularly the attendance on our scientific meetings has more than once been a subject of regret and even concern. Time and time again have excellent programs been prepared and presented to an audience so small as almost to discourage the essayist and embarrass the members. Therefore, I venture to state that one of the great needs of our Section is increased attendance and that can be the better accomplished through increased membership. Understand I do not for one moment think we should lower the high standard that has been so diligently maintained by those who have in the past years guided the affairs of this Section. And it is not necessary to lower our standard one particle. There *must be* hundreds of able men of the dental profession who if an invitation was extended to them would be pleased to affiliate with this Section of the Association and in so doing bring profit both to themselves and their Section.

The great amount of scientific information developed and presented in this Section every year is of great value to the general practitioner of dentistry, as well as the specialist in the several branches of oral surgery; therefore I contend that this Section on Stomatology is not performing its duties until it makes possible such a dissemination of scientific medical dental knowledge. According to the Constitution of the American Medical Association the degree of M.D. is not necessary for associate membership in several of its Sections, and of this number, the Section on Stomatology is one. And in its particular case the associate member need only possess the D.D.S. degree. Now this is not generally known. The idea most commonly entertained throughout the dental profession is that the additional degree of M.D. is necessary to qualify for membership in the Section on Stomatology. And also I have heard it stated time and again that the average dental practitioner could not grasp the papers presented here. This may or may not be true, but if true does it not just as aptly apply to any and all of the sections of the A.M.A. and their respective membership?

We must be a little more liberal and admit to our Section good men of the dental profession. Yes, even urge them to join us, if we wish others to receive the benefit of these excellent programs.

PART II. THE FIELD OF STOMATOLOGY

What is it? In other words where does the practice of dentistry, or stomatology, if you wish, end, and where does the practice of medicine begin? To what point may one possessing only the D.D.S. degree go in the treatment of oral infections; and if my question will not appear too foolish, to what point may a person possessing the M.D. degree go while in the same field. Some of you at this moment are wondering why I raise such a question and what can be gained by it. I raise the question for this reason: that there are at present many men possessing both the M.D. and D.D.S. degrees but licensed by their state to practice only dentistry. They are, I feel sure, frequently in their daily routine trespassing on the territory of the medical practitioner.

Now, legally, these gentlemen are no better off than the man possessing only his D.D.S. degree and so licensed. But I am sure many of the former class have not quite realized this and in their enthusiasm to care for their patients have lost sight of the fact that there must be some point at which the practice of dentistry stops and the practice of medicine begins.

Where that most aggravating point may be, your chairman is not going to dare even to suggest. But it does exist. And the presence in the dental profession of men with great scientific and medical knowledge, which they are daily applying more and more to the practice of dentistry, becomes almost a serious question as to just how far this dental practitioner may go and yet obtain the protection of the law for his acts. Sooner or later the several state legislatures will find it necessary to locate and define this dividing line and it is for this reason that I at this time raise this question, that you may give it serious thought. So that, when the time comes neither the dental nor the medical practitioner shall be hindered in his work, or what is more important the public shall not be deprived of the skill of even one man.

Do not understand me to say that scientifically there is any dividing line between the practices of the two professions. It cannot possibly be located, for it does not exist, but legally it does and we must define it or better define and remove it.

373 Fifth Avenue.

* Chairman's address read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

ABSTRACT OF DISCUSSION

DR. JOHN S. MARSHALL, Berkeley, Cal.: I have always been intensely interested in this section, and when Dr. Talbot and myself and some of the older men joined it we had to have the medical degree; no one was eligible else. The object in organizing the section was, as Dr. Fisher has indicated, to disseminate dental knowledge to the general medical practitioner. That has been the object all through the history of this section. I believe this section has been the leader in many things with regard to dental medicine and dental surgery. Of course, at first, we realized that, inasmuch as the medical degree was a prerequisite for membership, we could never be a large body. Some may remember that when the Association met in Chicago in 1886, Dr. Allport introduced a motion making dental surgeons with the D.D.S. degree eligible to membership, provided they came from colleges which had the same preliminary requirements that the medical schools had, and that did the same work in the fundamentals, chemistry, physiology, anatomy, etc. That was passed unanimously. Later, after I went into the United States Army, some change was made in the constitution whereby we have regular members who have the D.D.S. degree and also associate members. That has not added materially to the size of our section. There seems to be something lacking to build up the section; what that is I am not prepared to say. I want to make this suggestion, however, that we take up original investigation and present it to the Association as presented to-day by Dr. Price as part of the work done by the Research Commission of the National Dental Association. Our work has always been in the preparation of papers on those subjects that we consider vital

for the medical man to know, and these have been read with a great deal of avidity, and altogether we have done much toward bringing before the medical profession the real benefit of a thorough knowledge of dental diseases and their application to general medicine. I should be glad if this old idea of separation between medicine and dentistry could be obliterated. There is a coterie of men always talking about the dental profession as separate and distinct from medicine. I have always talked about dentistry as a department, a specialty of medicine, as much so as that of the eye, ear, nose or throat, or obstetrics and gynecology; but there is a feeling, and statements have been made by older men than myself in the profession, that they did not want to be the tail to the dog. I think it is a good thing to be the tail sometimes, provided you can wag the dog. I believe the time is coming when the distinction between dentistry and medicine will be wiped out and we will be simply called dental specialists instead of a separate profession of dentistry.

DR. H. L. WHEELER, New York: I am desirous of getting some information. I find written across my membership card always, and I have been a member of this section for many years, "Associate Fellow." Can anyone tell me what that means?

DR. E. S. TALBOT, Chicago: I cannot answer that.

DR. F. B. MOOREHEAD, Chicago: If you became a member through your state medical society, you should be a Fellow.

DR. WHEELER: I am a D.D.S.

DR. MOOREHEAD: Then you are simply an "Associate Fellow."

DR. WHEELER: That is the rub. I have no inclination to apologize for being a D.D.S. I have the medical certificate from the regents of the state of New York, but a great many dentists feel that there is a distinct line drawn between the degrees of M.D. and D.D.S., to the disadvantage of the D.D.S., in an organization composed largely of men with the M.D. degree. I feel it because I have probably done more organizing of dental service in hospitals than any other man in the country, and I have had that same difficulty in New York, which has dealt absolutely fairly with the dentist from start to finish, and there, at present, dentists are on the same footing as medical men, getting the same titles and the same pay in every department in which they serve. I believe this section has been useful and I believe that it can be made more useful. I believe, as Dr. Marshall has said, that our profession is a specialty of medicine. I have no sympathy with the idea of dentistry's being a separate profession any more than I feel that it is necessary for me to apologize for being a D.D.S. and nothing else. I believe that the D.D.S. covers that specialty thoroughly and completely, and that if dentists are wanted to attend these meetings they must be given to understand that there is no discrimination between men; that if one has the ability it does not matter what degree he holds. When the profession is convinced that whether the M.D. degree is or is not held, if a man holds the D.D.S. degree and shows ability to work substantially for the good of the healing art, I think we will have a much larger membership than we now have. I do not mean to infer that the attitude of the section is against the man who holds only the D.D.S. degree, but there is a great misunderstanding with regard to it which needs to be rectified. For instance, members of this section in New York have attempted to establish special service in the hospital in New York, and have insisted that if dentists were to have the recognized position they must have the M.D. degree. You cannot successfully establish such service if that policy is followed out. I have told them, and it is a fact, that in no institution in which the M.D. degree was insisted on have they got any further than the extraction of teeth. The institutions in which they have taken care of the mouth and teeth, in which they are working with the physicians, visiting the wards, and looking after the mouths while the physician is looking after the rest of the body, are the institutions that have taken the dentist without regard to degrees. I am grieved that there should be any difference of degrees when it comes to dentistry, and I believe the quicker that can be ignored the more quickly will institutions of this kind increase their strength.

DR. E. S. TALBOT, Chicago: I shall have to correct both Dr. Marshall and Dr. Wheeler with regard to the matter. There is no difference in their standing, except in degree. As Dr. Marshall has said, when the resolution referred to was passed, dentists were put on an equal footing and we have never had a single instance in which there has been any discrimination from that time. I have repeatedly explained this condition to various men and if dentists do not understand it, it is their fault. There has not been a single instance come up in the section in the House of Delegates or in the general body where the dentist has been discriminated against in any way.

DR. MARSHALL: Is that so to-day?

DR. TALBOT: Certainly it is so to-day. Every dentist in this section has the same privileges as the medical men.

DR. M. I. SCHAMBERG, New York: After listening to Dr. Talbot's explanation that there is no discrimination between dental and medical members of the Association, I call attention to the fact that my card likewise records me as an associate member, and at times it has been worded "dental member" although I hold both the medical and dental degrees. When I came into the section I was a member of the Philadelphia County Medical Society, and I was not even aware that my name came from any other source than through the county medical society, so that I have been surprised to be recorded as a dental member of the American Medical Association. That, however, is a trifle, because, as Dr. Talbot has said, there has been no discrimination at any time by the medical members toward the dental members of this Association. Several points mentioned by Dr. Fisher are of vital importance not alone to the members of this section but to many men practicing throughout the country whose status is not definitely defined by the law, or is not definitely understood. At present I am practicing in the state of New York under a dental license, having been unwilling to submit myself to the humiliation of passing the medical examining board ten or fifteen years after I had finished with the elementary subjects. This, however, every physician has to contend with when moving from one state to another, and makes it imperative that the legislatures of the various states should consider that dentists are primarily medically educated; that we take the elementary medical subjects whether or not we hold the medical degree, and that it is merely coincidental that dentistry has developed as it has in the separate schools. Many men with the D.D.S. degree are as able to perform operations in and about the mouth as we who were fortunate enough to have extended our work a year or so and acquired the M.D. degree. Dentistry is in truth a specialty of medicine and there should be no distinction between the two professions. I believe that, in time, the specialties of ophthalmology, otology, gynecology, etc., will be acquired as dentistry is. This is distinctly a day of specialties, and I believe that men in other specialties are less fitted for special practice on the day of graduation than are the members of the dental profession. It requires special instruction, and dentists have been receiving this and also instruction in the fundamental principles of medicine. Dr. Fisher's address should not be casually passed over. I believe dentistry should be defined in the statutes of the various states.

DR. G. V. I. BROWN, Milwaukee, Wis.: I have given the better part of the last few months to consideration of this subject. It is a pretty good time now for us to clear the atmosphere of these doubts so far as may be possible, and when we get into it a little more deeply there are some very distinct underlying educational questions which must in some way be satisfactorily answered before we can entirely dispose of the matter. I have been trying to suggest a way by which we may ultimately find out where we stand.

With regard to Dr. Wheeler's question, here is the difficulty with regard to membership; when the dental colleges agreed on a four-years' course, the dental members were on a par with the medical men and no difference was made, but when

they went back to the three-years' course, there must necessarily be some distinguishing mark between the man who has three years and the man who has four.

DR. WHEELER: The dental colleges are coming back to the four years' course.

DR. BROWN: I think they are coming to that, but until then there must be some distinction. It does not make any difference either in the conduct of the sections of the Association or their members, but nominally there must be a difference.

DR. R. H. IVY, Philadelphia: There is a way in which the section might bring the dental profession closer to the medical profession. The papers of different medical journals are abstracted each week in THE JOURNAL of the American Medical Association, and it might be possible through this section to have some of the papers appearing in the dental journals abstracted, as many of these papers are of interest to the medical profession. In that way much of the work of the dental men with regard to oral sepsis and other things would be directly brought to the notice of the medical profession.

DR. WILLIAM C. FISHER, New York: I did not purposely bring out the difference in the standing of the members. My idea was to bring to your attention facts which I thought possibly many had forgotten. Dr. Marshall seemed to think that the object of this section was to educate the members of the medical profession in things dental. I think if that was the object of it in its organization, we certainly should widen the scope and also educate dental men in things medical.

THE SECTION ON STOMATOLOGY AS A FACTOR IN THE EVOLUTION OF DENTAL AND MEDICAL SCIENCE*

GEORGE V. I. BROWN, M.D.
Oral Surgeon, Children's Free Hospital and St. Mary's Hospital
MILWAUKEE, WIS.

Recent advancement toward more general recognition of the pathologic influence of oral affections as factors in disease has been so great that almost every thought of distinction between those who treat disorders of the teeth, and the practitioners whose ministrations are directed to the relief of such distress in other anatomic regions, or of the organism as a whole, has been swept as driftwood before a tidal wave in the common desire of a great humanitarian impulse that brooks no trammel of limitation by degrees or titles.

Surely this is an age when dreams come true, for the visions that inspired the speech and directed the pens of such men as Alkinson of New York, Garretson, Bonnwill and Flagg of Philadelphia, Allport of Chicago and their contemporaries in early years touching as they then did the very boundary limits of the heights of empiricism, are now becoming prophetic in the light of actual scientific demonstrations of their truth.

In like manner the foundation laid with the help and guidance of the master surgeon, Samuel D. Gross, and the great builder of medical associations, Dr. N. S. Davis, and the little band of dentists who joined hands as organizers of the Section on Dentistry, now the Section on Stomatology of this great body, the American Medical Association, has become the underlying support of a rapidly extending scientific edifice. It is obvious that this superstructure can be sustained only by an ever-increasing broadness at its base; otherwise this influence must perish. It therefore seems advisable at this time to glance backward along the recorded pages of the thirty-two years of the Section's existence, and then to scan as best we may the already forming, though ill-defined, outlines of the possible future requirements in this division of medical science.

At a meeting of the American Medical Association held at Richmond, Va., May 3, 4, 5, and 6, 1881, there gathered together for the purpose of forming a Section on Dental and Oral Surgery the following organizers: Drs. W. W. Allport, Chicago; Huxhurst, Grand Rapids, Mich.; Eugene S. Talbot, Chicago; T. W. Brophy, Chicago; J. A. Williams, Boston; George L. Parmlee, Hartford, Conn., and D. H. Goodwille, New York. At that meeting Dr. Samuel D. Gross of Philadelphia asked for a suspension of the regular order of business and moved that the By-Laws of the Association be so amended as to create another Section to be known as No. 7 and entitled Dentistry. This was made effective the following year.

The first meeting was held at St. Paul, June 6, 1882. It is especially interesting in view of later events to note that at this time Dr. Allport offered a resolution providing for the appointment of dentists in the Army and Navy and to cooperate with Dr. Maynard of Washington for this purpose.

The resolutions of sympathy spread on the records of the Section, as they from time to time mark the passing of some important member, bear the stamp of a depth of feeling that cannot be measured by ordinary standards because each one of these far-seeing men was an integral part of the little group that was laboring for higher things in the progress of dental science.

My purpose in presenting this brief reference to the past is not so much an endeavor to do justice to faithful individual effort during a period of thirty-two years, deserving of such praise as the work may be, as to try to present in just the right way, if possible, the whole scheme of the present status of the pathology and treatment of tooth and mouth affections in their common relation to other diseases and incidentally to assist in clearing up the confusing conditions which pertain to the professional association of those who treat them, whether distinguished by the degree of D.D.S. or M.D. or both.

I fully realize that it will be next to impossible for me to state in exact terms just what this relationship, or state of interdependence, should be, for no one really knows and no two of those who ought to be best informed have ever been able to state their views similarly. Yet for this very reason there is even greater need of proper treatment of this subject.

To picture comprehensively the real influence of the work of this Section, one should have in mind, first, the all-important part that the mouth plays in the etiology of disease, as a source of focal infection, a cause of local or general nerve disturbances, and a factor in developmental, digestive, circulatory and other disorders; second, a just idea of the constructive benefit of the steadily continuous presentation of these subjects during thirty-two years in a section of the largest and best-recognized medical organization in this country, and of calling the attention of medical practitioners to this particular field in a specific way through the medium of their own medical journal; third, it should be understood that in the past too much attention has been given to degrees and much harm done through failure of dentists generally to realize that

* Read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

strictly dental organizations bear precisely the same relation to the Section on Stomatology of the American Medical Association that the special societies of other divisions of practice bear to their respective associations.

For example, the sections on surgery, internal medicine, eye, ear, nose, and throat have their corresponding associations in the American Surgical Association, American Neurological Association, American Laryngological, Rhinological and Otological Society, American Dermatological Association, American Association of Obstetricians and Gynocologists, etc., just as the dentists have the National Dental Association. There should be no question of loyalty involved in consideration of attendance on both.

When the members of the National Association of Dental College Faculties voted to extend the courses in their colleges to four years, the American Medical Association promptly accepted dentists to full membership in this body; but when the colleges decided to go back to three-year courses for graduation, it was obvious that there must be some distinction between men who have had four years' training when considering their association with those who have had only three. Thus dental graduates came to be accepted as associate members, but there is no appreciable difference between these two forms of membership in the conduct of section work and there ought to be a more general understanding of the fact that every dentist in this country has profited in some degree at least, professionally, socially and even personally, by the good work that this Section has accomplished.

There are grave questions to be met if dentistry is to hold her own in the advancement which marks the modern appreciation of pathologic and therapeutic considerations. This is no time to cavil about degrees. The true standard in rating the future practitioner in that branch of the healing art which directly relates to oral affections must be the measure of his knowledge of medical science, and his ability to cope with the requirements of a more or less radically changed order of practice.

From an educational point of view this means that the formerly so-called theoretical branches of the curriculum of his special college courses are after all in reality the very practical ones. Students of dentistry can no longer be permitted to skim through these studies and pass out into active practice with only a superficial knowledge of them. Anatomy, physiology, physics, chemistry, biology, histology and pathology are quite as necessary for them as for their brother students in general medicine. Obviously this cannot be accomplished under the plan of instruction as now given in preparation for the D.D.S. degree.

If, as Rosenow and other investigators have apparently proved, the principal sources of focal infection are found in the tonsils, the mouth, teeth, nose and nasal accessory sinuses, and if, as he also states, pathogenic micro-organisms can be harbored in these situations during the period of transmutation by which they may assume an increased virulence which makes them accountable for such diseases as ulcer of the stomach, rheumatism and its well-known chain of far-reaching symptoms, for endocarditis, myocarditis, gall-stones, and joint affections, and if in addition it can be shown, as we believe it can, that by proper care of the teeth and direction of the development of the dental arches, the pathologic conditions of both the tonsils and the nasal accessory sinuses can in large measure be controlled or prevented, then it must be accepted that full medical training is as essential for the one who has charge of the welfare of this fertile field for the propagation of disease, as it is for those who undertake to treat the general bodily manifestations thereof.

This does not of necessity mean that a student must first pursue the regular four years' course in medicine with the additional premedical and postgraduate years of studentship that are now being urged as necessary for proper training for the practice of medicine, and in addition a full course of two or three years more to complete his equipment for the practice of dentistry.

Desirable as these long years of preparation may be, and admitting to the fullest extent the value of the knowledge that might thus be acquired, there are nevertheless certain definite reasons why such preparation for the practice of dentistry is not practicable under present educational conditions.

Lest my position be misunderstood in view of this statement, and others that follow, it seems advisable for me to state that according to my belief it will no more be possible for dentistry to continue permanently as a profession distinctly apart from medicine than it was for the United States to exist half slave and half free, as recognized by Lincoln.

There must ever be some common meeting ground for all who practice legitimately every branch of the healing art. That has been, and will be with steadily growing recognition of its importance, the office of this, the representative stomatologic division of this great medical body.

Beyond a doubt there must come in the course of time the adoption and general use of degrees to distinguish the several medical divisions. Men without special training in surgery cannot be permitted to continue indefinitely to undertake grave surgical operations simply because they have qualified to the extent of a medical degree and a state board examination of general character. This is equally true of eye and ear, or nose and throat, or other limited practitioners, and they also should be required to have distinct evidence of preparation for their particular field of work.

With the continued extension of the required number of years of medical study and the very evident need of additional training for special practice, it would seem that in the course of the evolution of educational conditions there would ultimately be established a fundamental course of study which all must complete before taking up a special division of practice. The number of years required for this foundational preparation would be somewhat less instead of more than is now required for the M.D. degree, and the student after having completed this course could then in two years more of special study prepare himself for the degree which would represent his actual life work more completely than is usual at the present time. The following opinion expressed by Dr. E. C. Kirk is of interest because he is in charge of the Thomas W. Evans Museum and Dental Institute and therefore in control of the largest structure in the world exclusively devoted to dental instruction. As this institute is designed to give both undergraduate and postgraduate instruction, the views of one who is to direct its course are important in this relation.

It seems to me to be inevitable that in the course of time a rearrangement of the medical curriculum must result from the specializing tendency, and from the increase of bulk in medical knowledge, both of which factors have made it

impossible to educate any man in medicine so that he can cover the whole ground.

That reorganization will, I think, take something of the following form: A sufficient length of time in the medical curriculum will be devoted to the training of men in all of the sciences that are fundamental to the entire field of the science and art of healing, and the termination of that phase of the curriculum will be marked by the conferring of a degree which will be educationally equivalent to the bachelor's degree in science and letters, and from the point of attainment of the bachelor's degree in medicine the student will specialize in groups of studies that will make him an efficient practitioner in some recognized special department of medicine at the termination of which he will have conferred on him his doctorate in medicine, and he will be licensed to practice only within the limits of the specialty for which he has been trained. Should he desire to acquire the right to practice an additional specialty it will be necessary for him to prepare himself by further educational work in another special department, and then secure the license to permit him to practice in that department, and so on.

It may be too much to demand such sweeping reforms in medical education until such time as in the course of natural evolutional progress these changes gradually may be inaugurated. There is, however, an immediate necessity for more thorough education of students who are to become dental practitioners in the branches of study in which their courses parallel those of their brothers in medicine. Without delay these fundamental medical sciences should be given exactly the same as for students of general medicine, and a passing mark on any one of them should be considered equivalent in every way, no matter what branch of practice may be contemplated or selected. Thus, the dental graduate will not only be more thoroughly prepared for his special division of practice, but he will also have so many definite credits toward the medical degree that he may reasonably be able to complete this course also without too much hardship. In due time it will follow that increasing numbers of the most promising students will complete their double education and take both degrees. Ultimately through the selective influence of a more enlightened laity the two degrees will be required.

Dealing practically with the educational difficulties that lie in the way of idealization in this educational formula, we find that in the absence of certain necessary but apparently impossible changes in the underlying primary courses of instruction, by the time the average student could complete his literary course with four years leading to a degree in arts, or science, and then four years in medicine, with the very necessary hospital internship of one year more, in a majority of cases he will have reached such an age that the first enthusiasm of his career will be lost. It is a grave question if the average result would be as good as it has been in the past when an aspirant for a medical degree was allowed to enter the medical college with but little if any more preparation than a high-school education. But leaving that much-discussed question for the settlement of educators now battling with it, there at least can be no question regarding the probability that at this advanced period of life it would as a general rule be quite impossible for an individual to acquire the necessary manual dexterity for successful dental practice. It would seem then that the best that can be done at the present time is so to arrange the curriculum of the dental student as to make it possible for him to have full training in the technic laboratories from the very beginning of his course, and to take during his first two years as many of the strictly medical studies as he can carry and complete in each the full regular medical student's course in these branches.

Obviously when the medical student's first and second years are crowded to the limit of average capacity, the dentist cannot do all this thoroughly and spend approximately forty hours a week in dental technic laboratories beside. Every teacher of anatomy or physiology or other similar branch can testify to the difficulties that have presented themselves when this has been attempted. By distributing the work and making the courses for the dental degree extend through four years instead of three, then with all this work out of the way, one year more could be made sufficient for acquirement of the medical degree.

Our problem is thus a problem no longer and the dentist is now a completely developed specialist in his work. Whatever the final solution of the complex professional relationship may be, it is at least apparent that the influence of this section, past, present and future, will be instrumental in its final adjustment.

The horizon from a dental and oral outlook appears wonderfully bright at the present time. The establishment of free dental clinics in many of the principal cities of the United States, examinations of the mouths of schoolchildren, lectures on oral hygiene under state appointment; endowed institutions for the care of the mouths and teeth of the poor and the systematic education and training of dental original research workers, supported by funds contributed for the purpose, are some of the many evidences that might be cited of the undisputed right of this stone rejected by the medical builders in 1840 to a place in the great temple of medical science.

Who can doubt that the cumulative effect of the long years of faithful educational service that the members of this Section have rendered has been a potent influence in the preparation of the soil in which the seeds of the various movements have given such gratifying evidence of fertility? Above and beyond all other factors, the usefulness of the work of this Section must be attributed to our secretary, Dr. Eugene S. Talbot, who has made it his life work, and who for years has directed the broadness of the scientific policy that has shaped the character of the program from year to year.

Next to this the most active influence has been the earnest cooperation and assistance of Dr. Simmons and his predecessor, Dr. Hamilton, as editors of THE JOURNAL of the American Medical Association, without which there could have been no such wide spreading of the truths of the gospel of oral medicine.

For the future the most desirable consideration appears to be a closer union between this Section and the state, county and national dental organizations such as may lead to increased cooperative activity. This would also lead to a more widely extended recognition of the value of this link in the chain of medical specialties which has been so carefully welded and forged and tried in the fire of these many years, in order that it might be relied on to hold with sufficient security its own representative division in proper relation to all other parts of the associated body of the sacred order of those whose mission is to mitigate and relieve the ills of suffering humanity, whose common purpose is to render human life happier if not longer and at least a little more worth the living.

445 Milwaukee Street.

ABSTRACT OF DISCUSSION

DR. JOSEPH HEAD, Philadelphia: Dr. Brown's paper states clearly a fundamental thought that has been in the mind of every intelligent dentist since he began to practice. The dentist ought to be so perfect a mechanic that such perfection would be considered a goal easily sufficient for a life occupation; but the dentist also should be a thoroughly trained physician. We find that the mechanical appliances of dentistry which heretofore have been considered independent of a knowledge of medicine are now so closely associated with the health and happiness of the community that they can no longer be considered apart from pathology and therapeutics, but all these must be considered as an independent whole. For just as general medicine contains specialties, a complete comprehension of which would require twenty-five or thirty years to master, so the dentist has undertaken a specialty the complete comprehension of which would require ten or twelve years. This preliminary training is not feasible. By the time a man has studied ten or twelve years in college he will be so old that the enthusiasm of youth will be apt to be lacking and so it would be difficult for him to build up a practice. There should be, in my opinion, a bachelor's degree of medicine that *per se* would not allow any man to practice medicine, but from which he could go on to the special doctor's degree to which he would effectively confine his efforts.

DR. F. B. MOOREHEAD, Chicago: The discussion of any educational subject is of vital human interest and no set of men can ever determine the ultimate policy of any educational system, simply because it is a matter of evolution. This whole question that we are facing to-day in the matter of dental and medical education is simply a sign of the times. As man expands in thought and usefulness in the world, he is most surely going to demand a different type of training, and that is what this means. The question of dental education is a live subject to-day, because we are now facing a fact and not a theory. The physician and dentist have both awakened to the fact that the mouth is more important than it was thought in the past, and, therefore, the dentist must face and solve some serious problems. This calls for a different type of dental student. How to make that different type is an exceedingly difficult problem. We must educate enough dentists to care for the people and at the same time we must change from the kind of education we have given in the past and make the dental student a broader man. One step in that direction is the four-year course which I am convinced is sure to come. The first year in the four-year course should be a predental year in the university. The university method of study; the university enthusiasm and spirit will give the student a bigger and better perspective. This is the type we must have for the dentist of to-morrow. One cannot get away from the fact that, as much as we value medical training, the man who is to be a good dentist must be a good mechanic, because if he is not he cannot make his patients comfortable, and unless he makes his patients comfortable he is not serving them properly. The man who is uncomfortable is physically and mentally unfit. So we cannot lose sight of the fact that we must make mechanical dentists while developing the man of parts to take care of the medical side of dental practice.

DR. ARTHUR D. BLACK, Chicago: I think Dr. Brown has presented the consensus of opinion of a great many physicians and dentists as to the general proposition of the future of our educational system in medicine and dentistry, and the relationship which will probably exist between dentistry and the other specialties on the one hand, and a general medical education on the other. By the process of evolution we are gradually coming to the point where, whether it is taught in the medical school or in the dental school, all men who practice medicine and the specialties of medicine must have the same foundation education. It is certainly as important that the dentist know as much of general medicine as the man who is practicing any other specialty of medicine. That it will be a great many years before the dental specialist gets that foundation in the medical school, I am quite thoroughly satisfied. The greatest problem that we have from the point of view of dental education is that of developing a different type of men in the dental school, men who will enter with the idea that they will have to study and master physiologic and pathologic problems as a basis for their technical service. In the school with which I am connected we are endeavoring to develop this type under the conditions which now necessarily exist by shifting more of those subjects which require hard study into our freshman year and diminishing the amount of technical work required during that year. We hope to impress the student with the fact that he must learn to study if he ever gets the dental degree, and at the same time we are eliminating in the freshman year a lot of men who will not study. Doubtless the higher entrance requirement, especially if this consists of a prescribed course of a year in college, will be of material aid, both in the extra year's work and the college associations. This is a problem which many men interested in college work are considering at present; that we should prescribe, previous to admission into the dental school, not only a high-school education, but definite instruction in certain branches which the academic department is better qualified to give than is the dental school.

There is, however, another question to be considered in this connection. While the dental school must develop men who will be able to solve the more complex problems involved in the relationship of mouth conditions to general health, they cannot, on the other hand overlook the greatly increasing demand for the ordinary care of the teeth. The wave of public education in oral hygiene has brought such an increased demand for the most ordinary dental service that we cannot go so fast in this matter of advancing dental schools that we will materially reduce the number of graduates and thus not provide sufficient men for the ordinary dental service.

DR. EUGENE S. TALBOT, Chicago: At the time this section was established few graduates of medicine were practicing dentistry. Indeed very few were graduates in dentistry, as compared with those practicing without a degree. The friendly relations between dentistry and medicine, and between graduates of dentistry and non-graduates did not then exist. The medical profession on the other hand has always shown the greatest respect for our specialty. This is no doubt due to the fact that physicians realize that each branch of medicine has gradually advanced from small beginnings, requiring many years to reach the present state of evolution. They are willing and glad to help the youngest branch of medicine in its rise to a higher position. The Section on Stomatology has from year to year endeavored to represent the best material in the dental profession. We had been organized only a few years when we found that some of the ablest men practicing dentistry had not the medical degree, which was then necessary for membership in the A. M. A. We petitioned the general body and they immediately changed the constitution and by-laws so that practitioners of dentistry, holding the degree of D.D.S. and belonging to their state and local dental societies, could become "dental members" enjoying all the privileges of regular medical members. Again the medical profession came to our rescue and gave us a helping hand. Dental members have been stimulated to a higher sense of their relation to medicine. On the other hand, at nearly every meeting the names of physicians and surgeons are on the program. At present physicians are invited to read papers in dental societies and dentists have read papers at medical gatherings. There is no doubt that, in the future, some medical societies will recognize the dental degree for all that it implies, just as they now recognize other specialties in medicine. Recently a mutual ground between dentistry and medicine has been found, for which this section stands and which neither dentistry nor medicine are in themselves qualified to practice or teach. Those who will be the future successful practitioners of stomatology must be well grounded in the general principles of medicine. The practitioner of medicine has already begun to recognize those specialists who are abreast of the times with regard to mouth infection as a source of systemic disease. The physician will soon seek

those who are competent to assist him in making an exact diagnosis. Dentists who wish to be successful in the future must thoroughly educate themselves in both medicine and dentistry. The Council on Medical Education should discourage medical schools from conferring medical degrees on dentists who have not taken the prescribed medical course.

Dr. W. C. Fisher, New York: Dr. Brown's suggestion as to the establishment of the B.M. degree is a good one. I read a paper last year entitled, "The Need of a New Degree, Bachelor of Medicine." I simply gave it as a suggestion at that time, and backed up my statements by those of Dr. Bevan of the Council on Medical Education of this Association, in which he stated that too much time was being wasted in preliminary preparation before men entered the medical schools; that we could not turn out competent medical men in twenty-nine or thirty years with the present restrictions, and that some new scheme would have to be devised whereby men could go out on their life work earlier. Professor Lowell of Harvard has said that instead of demanding the Bachelor of Arts degree before entrance to medical schools it would be better if we would incorporate some of these studies in the course leading to the Bachelor of Science degree and take one year from the four-year course, instead of spending a couple of years in studies that did not particularly relate to medical education. The man who has an excellent preparatory school education, and that does not mean two years in college, is qualified to undertake the study of the sciences of medicine and dentistry. When we speak of getting better men I am in favor of that, but I am opposed to anything that makes it so late in life before a man can acquire that degree which entitles him to go forth into the world and earn his livelihood.

Dr. G. V. I. Brown, Milwaukee, Wis.: We have been discussing subjects that my paper relates to ever since the meeting opened, and it is clear to me that, in the settlement of this question, the time element alone will not do it, but it is equally clear to me that we should not make any step in this direction until we know best what to do.

CONTINUOUS PAINLESS RENAL HEMORRHAGE AND ITS TREATMENT *

WILLIAM M. SPITZER, M.D.
DENVER

The selection of the title for this paper has been made with the purpose in view of excluding all other conditions having hematuria as an accompanying symptom, and limiting the name to those cases in which there is constant and continuous bleeding from the kidney over a considerable period of time unaccompanied by pain except such as could easily be explained by the plugging of a ureter by a blood-clot. Objection might be had to the word "continuous," for in many cases the bleeding stops either spontaneously or after the administration of medicines or of serum, or as the result of mechanical therapy directed to the kidney pelvis. The bleeding may start again and continue for weeks or months, during which time blood in varying amounts may be recognized macroscopically in the urine. The term "essential renal hematuria" is in my opinion a proper name for this condition, because it is from the kidney substance that the bleeding takes place. This name, however, should be applied only to those cases in which absolutely nothing pathologic other than blood appears in the urine, and where no lesion can be demonstrated by a competent urologist. When epithelium from the tubules or the pelvis, or when pus, micro-organisms or crystals of any type are found in the urine with the blood, or when with the Roentgen ray or by palpation a tumor or foreign body be diagnosed in this organ, or when intermittent or chronic hydronephrosis is found or suspected, it would be manifestly wrong to call such a condition essential renal hematuria just because blood is present in the urine. I shall have occasion later to refer in a more detailed manner to the subject of differentiating this condition from others in which bleeding exists.

The literature on this subject is too voluminous to review at length. To those who are interested I may refer to Kretschmer's article,[1] which brings the bibliography up to 1907, and White's paper,[2] dated 1910. The bibliography since these reviews were published is also quite extensive, and I shall only give the gist of the opinions expressed therein.

Pathologists are in apparent accord that the lesions found in renal hematuria are confined mostly to the glomeruli, and the bleeding has therefore been attributed to a glomerulonephritis. The changes are briefly as follows: while most of the glomeruli are normal, a few show absence of some of the endothelial cells lining Bowman's capsule, while others show hyaline degeneration, and some have undergone fibrosis. Kidneys that had bled for a long time present more advanced changes of the same kind with a beginning fibrosis of the intertubular tissue, in other words an interstitial nephritis—*identically the same changes which are found in kidneys which have been passively congested for some time.*

Senator[3] cites a case in which he could find no lesion of the kidney either macroscopically or microscopically, and believes the condition to be a renal hemophilia. The general opinion, however, is that if these kidneys were scrutinized more carefully the changes described above would have been found.

Much has been written to show that hemorrhage from the kidney is fairly common in lesions of that organ. Elsner[4] tabulates the cases in which blood was found in the urine as follows: Chronic tubal nephritis, 33 per cent.; acute tubal nephritis, 100 per cent.; *secondary congested kidney, 100 per cent.;* chronic interstitial nephritis, 14 per cent. In the same article he cites cases of profuse hemorrhage with no symptoms and no findings in the urine which would indicate nephritis, and yet these after a long time (in one case five years) presented symptoms or urinary findings which are expected in Bright's disease. In the vast majority of these cases the blood was microscopic, and they, therefore, cannot be dignified with the term "hematuria."

The question naturally arises, Why is there such profuse bleeding in essential renal hematuria when pathologic changes are so slight, whereas in the kidneys of patients who have succumbed to nephritis in which the lesions were a hundred times worse there had been no hematuria? Are these pathologic changes the cause of hematuria as is generally thought, or are they the result of the process which causes the bleeding? In my humble opinion the prime cause is a chronic passive congestion. Although positive proof of this assertion is still lacking, I shall essay to bring forth some facts which tend to favor this view.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Kretschmer, H. L.: Beitrag zur Frage der essentiellen Nierenblutung, Ztschr. f. Urol., 1907, i, 490.
2. White: Quart. Jour. Med., 1910-1911, iv, 509.
3. Senator, H.: Ueber essentielle Nierenblutung und renale Hämophilie, Berl. klin. Wchnschr., 1910, p. 205.
4. Elsner: New York State Jour. Med., 1913, xiii, 144.

It is not uncommon to find blood in microscopic quantities in the urine from a kidney which is out of position, particularly when hydronephrosis is present. Occasionally even free bleeding is present. When the kidney is fixed properly in position this bleeding ceases. It is therefore fair to presume that the hemorrhage was due to a passive congestion, because while the inflowing blood-supply was not interfered with, the outflow was impaired. This would naturally come to pass in certain positions of the kidney because the caliber of the vein is more easily reduced in size than that of its companion artery for the following reasons:

1. Because its wall is thinner than that of the artery.
2. The pressure behind the inflow is many times greater than in the renal vein.
3. Because there are as a rule multiple renal arteries, while multiple renal veins are the exception.

If this passive congestion lasts a certain length of time, we shall find the identical changes that are seen in kidneys removed for essential renal hematuria. What more natural therefore than to assume that the cause of essential renal hematuria is a passive congestion?

Another reason for our belief is that these cases of essential renal hematuria cease to bleed spontaneously, and remain apparently well for varying periods, often never to recur. How may we account for this except for the explanation that the kidney after being twisted on a short pedicle so as to narrow the caliber of the vein subsequently resumes its proper position? The outflow of blood being no longer obstructed, the passive congestion clears up and the bleeding stops. In a week, a month, a year, the kidney may for some reason again be out of position, passive congestion once more occurs, and bleeding ensues.

We can thus account for the fact that Senator and others found no microscopic changes in some of these excised kidneys, while other observers have frequently found the glomerulonephritis previously described. If the kidney started to bleed as soon as it became congested and was removed before the pathologic changes could occur, it would be of course perfectly normal to the naked eye and under the microscope. In those cases, however, in which the passive congestion had continued over a longer period before removal, we would find this glomerulonephritis. If the kidneys were taken out at a still later stage we would probably find all the changes that accompany a chronic interstitial nephritis.

It seems to me that a passive congestion of one kidney can be accounted for only by a twisted short pedicle, for I can conceive of no other way, barring outside pressure on the pedicle, that would give rise to this condition. Several other observations have led me to believe that a twisted pedicle is the cause of this condition. In stereoscopic pictures of the collargol-filled kidney pelvis the organ occupies normally a certain fixed position, with the pelvis directed downward, inward and forward toward the ureteropelvic junction, while in cases in which the kidney cannot be called loose, but is nevertheless giving trouble, we have found its position so changed that the convex border instead of being almost parallel to the spinal column, is nearly at a right angle to the spine, as shown by the direction of the pelvis. In other cases again, particularly the one I recall to mind, in which a beginning hydronephrosis existed with blood in the urine, the kidney was so placed that its convex border presented toward the abdominal wall. The patient was cured by fixing the kidney, which was not loose, in its proper position.

Another argument: In cases of hydronephrosis with concomitant bleeding the latter symptom was arrested by simply fixing the kidney properly; and cases of essential renal hematuria in which no hydronephrosis was present have been cured by fixation.

The necessity of differentiating this condition from others accompanied by renal bleeding is quite apparent, but not always so easy. The microscope must show red blood-corpuscles unaccompanied by pus, microorganisms, casts or epithelium from the kidney or its pelvis. The bladder must be free of disease, the ureter mouths normal, the flow from the ureter catheters normal, the kidney must be impalpable, or if palpable no larger than normal and it must present no irregularities to the hand. The Roentgen ray must show the kidney clearly when a pyelogram is made, and the kidney pelvis must be normal in shape and size. If the contents of the kidney pelvis exceed 10 c.c.[5] I do not consider it normal. With these restrictions we can exclude renal tuberculosis, stone, abscess, hydronephrosis and the commoner conditions in which hemorrhage occurs.

In tumors of the pelvis, by the time bleeding is continuous, one would expect epithelium in large quantities from the pelvis, together with débris from the constantly degenerating neoplasm. Continuous hemorrhage is extremely rare in tumors of the kidney until the enlarged growth has attained such a size as to be palpable.[6] Pyelitis will show besides red corpuscles other elements in large numbers in the segregated urine. Nephritis presents well-known symptoms or urinary findings which make this condition recognizable. *Besides a true nephritis cannot be one-sided.*

A diagnosis of essential renal hematuria having been established, the question arises as to its proper treatment. Ordinarily we should keep the patient under observation unless the anemia begins to give grave concern. Many of these patients never become anemic. In the meantime we may try the injection of blood-serum, a rest in bed for a short time, and a properly fitted lower abdominal corset. As to the injection of epinephrin into the kidney pelvis,[7] I consider this procedure more of a diagnostic than a therapeutic measure. If the bleeding arises from the pelvis the urine should be free from blood, or at least clearer for a short time following the injection, although it should not (theoretically) affect the bleeding in essential renal hematuria. In the three cases in which I have tried epinephrin the result was nil.

If the anemia progresses in spite of these procedures it is time to consider surgical intervention. One must, however, think long and arduously before daring to operate, and when operation is finally decided on, nephrectomy should be the last thought.

Years ago, before the advent of the present diagnostic facilities, the kidney was bisected at the operating table in order to determine whether stone or tumor was present. If neither was found the organ was securely sewed together. To the surprise of the operator the bleeding from the kidney stopped,

5. Childs, S. B., and Spitzer, W. M.: Roentgenographic Study of the Normal Kidney, Its Pelvis and Ureter, THE JOURNAL, A. M. A., Sept. 30, 1913, 925.

6. Barney, J. Dellinger: Reports of the Meetings of the New England Branch of the American Urological Association for the Winter 1912-1913.

7. Suggested by Kretschmer, with report of case in which bleeding was stopped, THE JOURNAL, A. M. A., July 5, 1913, p. 17.

although nothing had apparently been done to bring about this happy result. This occurred so often, and was so frequently reported in the literature, that it came to be adopted as a routine treatment for essential renal hematuria. Many a kidney has been bisected not for the sake of diagnosis but in the belief of the efficacy of nephrotomy. In all probability, however, it was the suturing of the kidney, with its consequent removal of a large portion of the kidney tissue from the renal circulation (partial nephrectomy) which produced the cure. Much has been said in praise of this bisection as a cure, and very little of the dangers that accompany it. In fact, a recent article by Payne[8] asserted that not a single case has been reported in which this procedure failed to relieve this condition. While this may be true, it is surely contrary to reason to bisect a kidney if it be not the bisection which cures, when in a large number of cases the secondary bleeding from the incision is so great as to necessitate reopening the wound and removing the kidney.

If the arguments as to the cause of essential renal hematuria be valid, what is the proper surgical treatment? Nephropexy with decapsulation, in the earlier stages, with a careful attempt to place the kidney in the position where it belongs. It may not be amiss at this point to call attention to the position of the kidney when properly placed. The kidneys are so situated that the upper poles are nearer together than the lower, the distance between the lower poles being almost twice as great as between the upper. The convex border of the kidney is posterior to the pelvis. If accessory arteries are found, they should be cut and tied. If the operation be not successful in stopping the hematuria, then at a subsequent operation a continuous mattress suture may be placed in the kidney, running from pole to pole, just as one would place it had the kidney been bisected. Experimental work on dogs by me has demonstrated that no evil results follow from this method of suture excepting the infarction that must of necessity ensue. There is no doubt that it is this partial nephrectomy which cures these patients, and not the bisection of the kidney. The rationale of the cure is probably the following: The vein capable of carrying only a certain percentage of blood back from the kidney is required to transport a smaller amount after this partial nephrectomy and is thus able to perform its function even though its patency is impaired.

I have had eight cases of this condition under observation, and will give a concise report of them. In one the bleeding ceased after four months, and did not return during the following eighteen months, after which time I lost sight of the patient. In four more the bleeding had persisted for periods of from six months to two years before they came under my observation. As the patients did not suffer from the hematuria I advised delay, and two of them passed from sight. I feel gratified that I did not advise surgical interference. Two others, with whom I am still in touch, seem to be in perfect condition despite hematuria of over two years' standing. In another case I advised surgical interference and assisted at a bisection of the kidney, which subsequently bled much worse than before by way of the bladder as well as from the wound, so that after eleven days I advised nephrectomy in order to save the patient's life. In still another case, nephropexy cured the condition. In the remaining case the hemorrhage was very free, and the surgeon who had referred the case to me for diagnosis removed the kidney as soon as I traced the bleeding to its source. In the two cases in which the kidney was removed and in another one belonging to a colleague I had an opportunity to study the pathologic changes. In two of them the glomerular changes described above were the only lesions found, while in the third, in which blooding had persisted for eighteen years, microscopic examination revealed intertubular fibrosis besides the glomerular changes.

8. Payne: Surg., Gynec. and Obst., July. 1913. p. 93.

CONCLUSIONS

1. The changes found in kidneys of essential hematuria are identical with those found in passive congestion and are therefore caused by passive congestion.
2. The bleeding is due to passive congestion, the kidney being an organ so constructed that it must of necessity bleed in the presence of passive congestion.
3. It is erroneous to ascribe the bleeding to nephritis, as there are no clinical symptoms or urinary findings indicative of nephritis, nor can the latter be unilateral. Still, it is admitted that if the bleeding continues, the pathologic changes in the kidney would be the same as in chronic interstitial nephritis.
4. The passive congestion occurring in one kidney only is due to some interference with the outflow of blood, which comes from a twisting of the kidney on a short pedicle.
5. Operative interference is warranted only when it becomes necessary to save the patient's life because of an increasing secondary anemia.
6. Bisection of the kidney for the cure of this condition is contra-indicated, and likewise dangerous.

630 Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. Herman L. Kretschmer, Chicago: The term "essential hematuria" originally was meant to be applied in those cases in which no reason could be found for the hemorrhage. That, of course, excludes cases of stone, tumor and tuberculosis. In view of the fact that Dr. Spitzer found aberrant blood-vessels and a movable kidney, these cases could not be put into the class of essential hematuria; because he found some reason for the bleeding. The term is one that is used very recklessly and carelessly. A great many times the term essential hematuria is "hooked" onto a case that is not sufficiently worked up. It is an expression of our limitations in pathology and diagnosis. If these cases are studied bacteriologically, sections made, not from a part, but from the entire kidney, and cultures made from the urine, in the large majority of instances some reason for the bleeding will be found. The ease with which lesions may be overlooked is illustrated in a recent case of Schupbach, who had a patient in whom the diagnosis of essential hematuria was made. The kidney was decapsulated, the bleeding did not stop, and it became necessary to remove the kidney. The kidney was cut open and no pathologic lesion found. Serial sections, however, revealed the presence of tuberculous lesions which had eroded a small blood-vessel, thus causing the hemorrhage. The more these cases are studied, the less we will use the term. I cannot agree with Dr. Spitzer that his case was one of essential hematuria, because he found a movable kidney. Nor can I agree with him that we have the same pathologic factor in this as in passive congestion. As regards the unilateral occurrence of the hemorrhage, we should consider the possibility of these lesions being bilateral. Dr. Spitzer says nephritis would not be unilateral. That is a good point, particularly when these patients are to be subjected to nephrectomy. I recall a case in which a patient

had a one-side hemorrhage. The diagnosis of essential hematuria was made, the kidney was decapsulated, and the bleeding stopped. I saw him a year later and he was bleeding from the other side. Sections from the second side showed extensive nephritic changes. If we had removed that patient's kidney it would have been very unfortunate, because both sides were diseased. I do not think we can call attention to this too often. All that nine out of ten surgeons require to know is which side is bleeding, and they do a nephrectomy. Cases of hydronephrosis associated with bleeding should not be included in these cases of essential hematuria. Dr. Braasch pointed out last year that in a certain number of cases of pyelitis profuse bleeding occurs. This is another argument in favor of care in analyzing these cases. Too many of these patients are operated on, the kidneys exposed, and the diagnosis of essential hematuria made. Even if such a kidney were cut into, unless the pelvis were opened, it is easy to see how a lesion in the renal pelvis could be overlooked. I therefore wish to be recorded as opposing nephrectomy in the treatment of this group of cases except as a last resort. In many of these cases of essential hematuria the bleeding stops with less radical measures. In a case reported a few years ago by Dr. Hagner the bleeding ceased following ureteral catheterization. Many cases of bleeding stop with a simple procedure. Catheterizing the bladder in one case stopped the bleeding. The injection of epinephrin into the kidney is a valuable procedure, and so far as I know was first used by Dr. Young. We must bear in mind that most of these cases have an organic basis and hence we must not treat them too long with the epinephrin injections.

DR. W. F. BRAASCH, Rochester, Minn.: I want to call attention to a condition which is easily overlooked and which may be regarded as due to essential hematuria, when in reality it is due to an inflammatory condition of the renal papillae. The accompanying clinical data are much the same as in the so-called essential hematuria with the exception that a varying number of pus-cells are found in the urine often together with colon bacilli. On section of the kidney, the papillae appear somewhat inflamed or slightly ulcerated and occasionally white areas, which are the result of necrosis, are visible at the tips. In the past year, we have found two cases in which we could say quite definitely that the hematuria was due to a condition which might be called chronic papillitis. Both of the cases were given pelvic lavage and autogenous vaccine without effect, so that nephrectomy was necessary.

DR. HUGH CABOT, Boston: This opens an interesting and difficult question, and I am not sure that I entirely understood Dr. Spitzer. He will correct me if I am wrong. I object to the use of the term essential hematuria, because it seems to me merely a cloak for ignorance. We had better say frankly we do not know what is the matter with a patient; but up to the point where absolutely nothing can be found let us classify these cases according to the cause of hemorrhage. I do not think that I agree with him in regard to bleeding from cases of chronic nephritis. I am sure that unilateral bleeding in chronic nephritis occurs. At least two cases were observed over a term of years in which intermittent bleeding occurred and a diagnosis of chronic nephritis was made, the bleeding having been first from one kidney and then from the other. We never happened to see it coming from both. I have no doubt that during that time a period of bilateral bleeding did occur. The bleeding in these cases of chronic nephritis I believe to be due to localized changes in the kidney, but I think it rarely occurs in chronic nephritis because there are few cases of such severity as to cause bleeding in which a diagnosis cannot be made by the other evidences of chronic nephritis. I think we are apt to overlook the fact that chronic nephritis is not a disease of the kidney; that there are other conditions, circulatory and otherwise.

Here is a point concerning which I am not at all sure that I understood Dr. Spitzer, but I rather gathered that he said that conditions causing passive congestion in the kidney would ultimately cause changes in the kidney similar to chronic nephritis. That I believe to be based on pathologic error. I believe it necessarily occurs from a reaction in the kidney, and is always glomerular or arteriosclerotic. I do not believe any amount of change in the position of a kidney will produce the essential lesion of chronic nephritis. That mobility of the kidney can produce hematuria has been known for many years, and that the replacement of these movable kidneys will stop the hematuria is also well known. In those cases the diagnosis of kidney mobility and not essential hematuria should be made.

I did not hear Dr. Spitzer discuss those cases of varicose papillae which are now, I think, proved to be pathologic entities beyond the shadow of a doubt. They will give rise to renal hematuria without any other evidence but that of blood in the urine. This hematuria may be severe in character, may produce a high degree of secondary anemia, and has been treated by nephrectomy, which I believe to be entirely unnecessary. But the fact that it has been treated by nephrectomy has given us the pathologic material on which the diagnosis has been made with certainty.

That a condition that we may be required to call essential hematuria may occur cannot, I think, be denied. It simply is a confession of ignorance, not a confession of wisdom, and more and more as these cases are narrowly examined with the best methods we shall find them in this inflammatory category to which Dr. Braasch referred, or with some demonstrable lesion as the cause of the bleeding. That the bleeding occurs as an act of God, without any reason whatever, is still to be shown.

DR. J. W. SQUIRES, Charlotte, N. C.: A case of renal hematuria came under my observation. Ureteral catheterization was done and the functional output from each kidney as shown by phenolsulphonephthalein, was 15 per cent. About one month ago, ten months after the first ureteral catheterization, the patient came in for another catheterization. At this time the right or bleeding kidney, was putting out 5 per cent. in one hour and the left 25 per cent. in one hour. When the patient first came into my hands I made a diagnosis of essential hematuria because of the fact that the functional output was normal and I could not find any pathologic lesion or any etiologic factor for the bleeding from this kidney. After the last catheterization I told him that there was now a demand for an operative procedure, and advised it. In the operation we found a hypernephroma of the right kidney. I wish to emphasize that in unilateral renal hematuria the function of the two kidneys may be practically the same when the case first comes under observation, but if kept under observation for sufficient time some pathologic lesion will be detected.

DR. W. M. SPITZER, Denver: Dr. Kretschmer, I think, misunderstood me. I stated that at the time of operation one should replace the kidney and sew it in its proper place, and if accessory arteries are found they should be cut. In my paper I distinctly limited these cases of essential hematuria, so-called, to cases in which a competent urologist could find no lesion in the kidney, no micro-organisms in the urine, no pus, no epithelial cells from either the pelvis of the kidney or the kidney itself; in which no tumor was palpable, and in which the roentgenogram of the kidney as well as one of the collargol-filled kidney pelvis, showed no tumor; and I also excluded hydronephrosis, and then called the rest of the cases those of essential renal hematuria. As to bleeding from both sides, I have never seen a case. I have never even seen bleeding first from one side and then from the other, but if I should see such a case I should very strongly suspect a nephritis, although I agree with Dr. Cabot, that signs of nephritis and urinary findings should be present. In the cases of lesions in the papillae, mentioned by Dr. Braasch, we should find enough pelvic epithelium in the urine to help us diagnose them as such. I mentioned that I considered the injection of epinephrin a diagnostic measure. We might get a cessation of hemorrhage by injecting epinephrin in cases in which the papillae are bleeding. I do think, however, that this is a rare cause of bleeding. I do not see how

we can refuse to call these conditions cases of essential hematuria when they are narrowed down. It is the kidney substance itself that is bleeding. It is a cloak for our ignorance to call it idiopathic renal hematuria, but it is not so to call it essential renal hematuria. Dr. Cabot doubts that the changes can be the same in these kidneys as those we find in chronic interstitial nephritis. They will be the same eventually. If a chronic passive congestion of the kidney exists, the same changes that I have described will be found, and after that a round-cell infiltration and finally an interstubular fibrosis, and thus, eventually, all the changes of chronic interstitial nephritis. Dr. Cabot also spoke of varix of the papilla. The reason I did not mention it was that I was afraid to. Harry Fenwick has described six cases and Dr. Cabot has described one. I do not see how it could be demonstrated microscopically after the kidney was excised. It may be it can be demonstrated macroscopically while operating. Lately there have been no cases of varix of the papilla reported. Dr. Squires speaks of a case of tumor of the kidney with accompanying hemorrhage, in which there was a low output of phthalein. This is as it should be. If careful roentgenograms had been taken in his case, I do not doubt that the diagnosis of tumor would have been made before the patient was operated on.

EXTRAPERITONEAL RUPTURE OF THE BLADDER

ITS SURGICAL MANAGEMENT *

EUGENE FULLER, M.D.
NEW YORK

Extraperitoneal rupture of the bladder, for a serious injury, has received little specialized study or attention, and when this can be said of a surgical condition of such magnitude it follows almost as a matter of course that its management has been, as a rule, inefficient and unsatisfactory. Some may criticize this statement on the ground that hospital statistics show that a large percentage of patients with such injuries are at present discharged from the hospital alive and with the record "recovered." Still, if one will take the trouble to investigate these patients so discharged, it will be found that almost all of them have recovered only sufficiently to be discharged from hospital, and that most of them have been left invalided—the majority, severely so.

Peritoneal rupture, on the contrary, has been carefully studied, and the surgery applied to it has been radical and eminently satisfactory. Severe violence directed against the suprapubic or perineal region may result in extraperitoneal rupture. When violence is simultaneously exerted in both these directions, the bladder has small chance of escaping severe damage. The worst cases of extraperitoneal rupture are those associated with fracture of the pelvis. In many such cases violence has been severe enough to cause general destruction and to make death inevitable. In these extreme instances surgery, at its best, may be ineffectual. It is in the cases uncomplicated by pelvic fracture that surgery has a chance to show its efficiency.

Extraperitoneal rupture generally occurs in the region of the trigonum; less frequently above, under the space of Retzius, and occasionally at the side of the vesical neck. In most instances the injury consists of one tear, less frequently of two, and occasionally of even more. Multiple ruptures usually occur in connection with fracture of the pelvis, and some of them are in the nature of punctures caused by the sharp ends of the fractured bone. If a rupture is small and perhaps incomplete, the amount of urine extravasated may be correspondingly slight, the result being simply a circumscribed area of involvement. A case such as this, treated expectantly, can leave the patient with nothing more than a corresponding area of pericystic sclerosis. The symptoms arising from such sclerosis may be slight or severe, according to the extent and position of the lesion. In the great majority of cases, however, owing to the volume of the extravasation or to a complicating secondary infection, expectant treatment invites a fatal termination. Following such injury, the extravasated fluid tends as it increases in amount—owing to a continuance of vesical distention or to pus formation from secondary infection—rapidly to extend itself, so that after the extravesical space about the site of the rupture is filled, active burrowing follows. The directions which can be taken by such burrowings are various. One point, however, seems from my experience to be reasonably assured, and that is that the most dependent part of the extravesical space—in other words, the postprostatic area in which the seminal vesicles lie—always becomes involved; primarily, when the extravesical rupture is, as is usual, at the base of the organ and secondarily, when it is elsewhere. This is a point of the utmost importance to be kept in mind, as will be seen in considering surgical treatment.

Further burrowings point outside the pelvis. They may extend behind the peritoneum—sufficiently, perhaps, to involve the perinephritic region on one or both sides—or they may mount upward, filling the space of Retzius in the middle, or the inguinal regions to either side. The extension above the space of Retzius may result in a marked hypogastric tumefaction, liable to be mistaken for an overdistended bladder. Or, following extrapelvic deviations of the pelvic fascia, the burrowing may invade the thigh, passing out of the pelvis under Poupart's ligament, generally externally to the internal iliac vessels; or it may reach the scrotum, following along and externally to the structures occupying the inguinal canal. The buttocks can be invaded, the paths being via the obturator or the great sacrosciatic foramens. These last paths, however, are rarely taken, as they are narrow and devious. Extravasations can break through the pelvic fascia into the ischiorectal space, the perineum and elsewhere, but the assumption of such directions is not to be expected unless the trauma causing the bladder rent likewise breaks down other structures which would otherwise serve as natural barriers.

There are no strikingly characteristic clinical symptoms associated with extraperitoneal vesical rupture, and it is on this account that often the injury remains undetected until inflammatory changes or burrowings in connection with the extravasation attract attention. Hematuria is present after the accident, perhaps to such an extent as to fill the bladder with clot; or it may be so slight as to cause no noticeable discoloration. When the bleeding is so slight as not to cause the formation of clot, and when the laceration does not involve the vesical neck, there is not apt to be retention. There is always some pain on urination, and this may be severe. The pain, however, associated with other parts which have been injured by the

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

traumatism responsible also for the bladder injury, may be so prominent as to divert attention, thus causing the discomfort connected with urination to escape observation. There is apt to be febrile disturbance, generally marked. As extravasation progressively develops, attendant symptoms arise, and it is these secondary symptoms, as stated, which frequently first lead to a realization on the part of the surgeon of existing conditions.

Diagnostic considerations as regards extraperitoneal vesical rupture vary greatly in accordance with the time which has elapsed after the accident before surgical aid can be rendered. When a surgeon sees a case promptly, the differential diagnosis between anuria, intraperitoneal rupture and extraperitoneal rupture is most important. When there has been considerable delay, time itself, for better or worse, has generally solved these questions, but left in all probability others. When a case indicating bladder injury is seen promptly, the patient should be instructed to urinate. If he can do so naturally and the urine is free from blood, the chance is that there has been no vesical injury, and expectant treatment, as far as the bladder is concerned, is warranted. If he cannot urinate, a sterile catheter should be passed. If no urine and no blood is thereby revealed, the probability of anuria due to shock is justified. The abdomen, however, should be carefully watched, and if, at the end of a brief interval, on a second introduction of the catheter no urine should be found, a measured amount of sterile normal saline solution should be injected into the bladder. If the volume injected is caught in the return flow, well and good. If not, the abdomen should be promptly opened and an intraperitoneal rent looked for and closed, if found. If there be no intraperitoneal injury, inspection should then be made to find if there exists any evidence intra-abdominally of extraperitoneal vesical injury.

Fig. 1.—Line of incision.

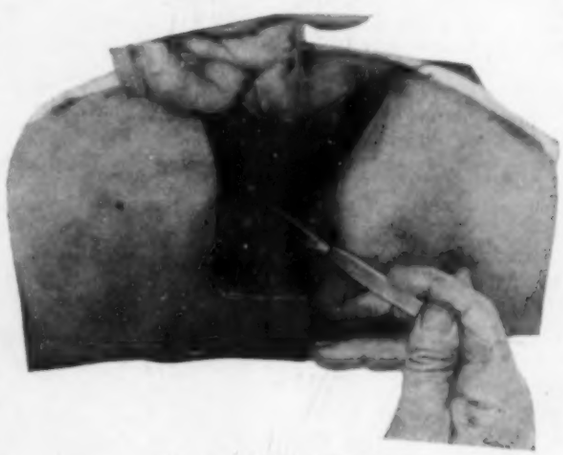


Fig. 2.—Perineal dissection.

To aid in this inspection, in case there should be no evidence, a catheter can be introduced and the distention of the bladder watched as fluid is injected. The abdominal wound should then be closed and the bladder opened suprapubically and drained. Such prompt drainage may anticipate any extraperitoneal extravasation, allow the bladder to heal, and obviate a secondary operation such as will be necessary should there be any marked degree of extravasation. If the bladder contain blood clot, or if there be retention due to an involvement by the trauma of the bladder neck or deep urethra, then suprapubic cystotomy should be promptly performed. The bladder, on being opened, should be emptied and inspected, to locate injury. If there be then any indication of rupture involving the peritoneum, the abdomen should be opened as a secondary step in the primary operative procedure, and such a rent closed. In any event, suprapubic vesical drainage should be established. If suprapubic cystotomy discloses extravesical rupture and there is good reason to believe that the bladder has been opened before urinary extravasation to any degree has had time to take place, nothing further should be done. After such operation it may be advisable—even in case there be doubt regarding the question of extravasation—to delay operating to insure extravesical drainage until symptoms develop indicating the necessity for such further procedure.

It is the cases of extraperitoneal vesical rupture that have not had the benefit of prompt surgery immediately following injury—a prophylaxis, as it were, against urinary extravasation—which especially deserve notice, as they represent the large majority. Before considering the question of how these should be surgically treated, it may be well to remark on the inefficient treatment so generally employed, for it is from the study of bad results that good ones can be appreciated.

In most instances in which extravasation has not burrowed sufficiently to produce external manifestations, it will be found that the bladder has been opened perineally or suprapubically, or perhaps in both directions. When burrowing has been extensive enough to cause surface evidence or much localized pain, an incision into such part or direction is common, followed by the liberation of pent-up fluid and the maintenance of drainage. Although late cystotomy does little and perhaps no good, incision into the area involved by the extension of extravasation is very beneficial in that it probably saves life. Still, its fault is that it does not cure. This is because such incision only partially drains the area. Another error into which those cutting into such burrowings may fall is observed in connection with cases in which the burrowings have been sufficiently extensive to point outside the pelvis, far from its original source. When such a pus cavity is opened, the false inference may be drawn that a nearby part is the source of suppuration and consequently requires surgical removal. As an illustration, the head of the femur has been resected, the suppurative process having in reality burrowed out of the pelvis by way of the great sacrosciatic foramen; or a piece of the sacrum has been

chiseled off, on the supposition that disease there was the original cause.

In a paper[1] which I read in 1902 and which represented my early surgical experience, I made the following remarks:

> The surgical management of suppuration in this part or elsewhere lies in the establishment of free drainage. In order that drainage be free, it must be dependent. As the pelvic cavity is deep, the surgical problem of effecting dependent drainage arises. . . . In each individual case

Fig. 3.—Separation from the rectal wall.

> there are two surgical principles to be determined in connection with the establishment of the drainage: first, the location of the dependent pocket of suppuration, and, second, the dissection to reach that pocket. . . . No dependent dissection should be attempted till the pocket has been located. . . .
>
> The second step in the surgical procedure is the dependent dissection. This dissection should open a perineal path and expose the lymph space between the prostatic capsule and the rectum, the urethra being left intact. In making this dissection, the dorsal position and the Zuckerkandl incision can be employed; but what is far superior is the knee-breast position and the incision which I devised to expose the seminal vesicles and the prostate, a description of which has been published in The Journal of the American Medical Association, May 4, 1901.

This early opinion, though thoroughly sound, I have since seen fit to modify as regards procedure, in that I now make the second step the first, while the original first step becomes the second. This change simplifies matters and avoids exposing the patient to what often resulted in a needless degree of dissection in locating the pocket in connection with the original first step of the operation. As all these extravasations tend speedily to reach the most dependent extravesical space, that space should first be opened. It will then be found a much simpler matter to trace with the finger or probe the track of the burrowing from its dependent position to its limit of extension, than was the vice versa original procedure. When the limit of extension is located, an external incision can be made down on the end of a probe and drainage tubes introduced. It may be that burrowings have taken place in more than one direction, in which event more than one external connecting incision will be necessary. Drainage tubes should be serrated and of sufficient length to pass in at the external connecting incision and out at the entrance to the dependent incision.

The accompanying photographs illustrate the performance of the dependent dissection. As the seminal vesicles in these cases are embedded by infiltrate, it is wise to open them just as would be done in the performance of a regular seminal vesiculotomy. The patient is in the knee-chest position.

Figure 1 shows the line of incision. In this photograph, although the depth of the incision is still superficial, the marked tendency to retraction of the tissues is clearly evident. This tendency to retraction, intensified by the position of the patient, is an element of great aid to the operator. The converging cuts on either side of the rectum are made long so that the rectum can freely retract as the perineal dissection liberates it from its natural anchorage.

Figure 2 indicates the method of perineal dissection. Note the marked retraction of the rectal structures, the lower rectal flap having already retracted fully two inches. This retraction is sufficient to expose the prostate on lifting the rectal flap, making that organ a superficial rather than a deep-lying structure. In making this dissection, the forefinger of the operator's left hand is maintained in the rectum to serve as a guide while the dissection progresses. While so operating, the side rather than the blade of the scalpel is used, so as not to cut into the muscular structure of the perineum, the path of dissection lying just outside the muscular perineal body and inside the perineal fascia. By so doing, and by starting the transverse flap well below the margin of the anus, the rectal sphincter and the blood-vessels encircling that organ escape injury. In fact, so little injury is done to blood-vessels that it is exceptional when it is found necessary to ligate a single vessel through the performance of the entire operation. As the dissection

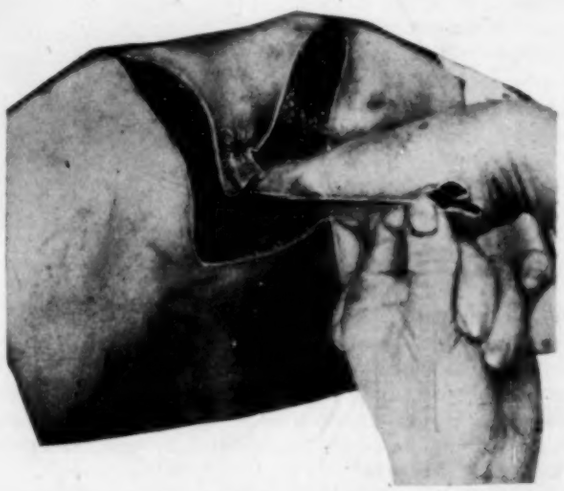


Fig. 4.—Placing the grooved director.

proceeds around the perineal body, that structure tends of itself to retract downward. The fascia propria of the pelvis, with its median raphé, is then exposed, and when this is cut through the bursal space separating the rectum from the prostatic body is entered.

Figure 3 shows the next step in the operation, the separation of the rectal wall from the underlying prostate, the seminal vesicles and the bladder floor. After the fascia propria of the pelvis has been divided, the scalpel is put aside and the right forefinger of the

1. Fuller, Eugene: Drainage of Extravesical and Extraperitoneal Suppuration of the Male Pelvis, The Journal A. M. A., Oct. 25, 1902, p. 1021.

operator is introduced into the bursal space just mentioned, and the process of separating the rectal wall from the prostate and seminal vesicles by digital manipulation is undertaken. In accomplishing this, the right finger-tip should be bent down to guard against perforation of the rectal wall, while the left forefinger is still maintained in the bowel as an aid in the same direction; for should the right finger impinge too closely on the bowel wall in accomplishing its separation, the left finger gives the operator immediate

Fig. 5.—Passing the knife.

warning. In the performance of this digital separation it may be that fibrous bands are encountered, too dense for separation by the finger-tip. If such is the case, the scalpel guided by a director can be introduced to cut the band, after which the digital separation is resumed.

Figure 4 illustrates the putting in place of the grooved director under the guidance of the operator's right forefinger. After the rectal wall has been detached from the underlying seminal vesicles, the operator places his right forefinger-tip on the apex of a seminal vesicle (in the photograph, it is the apex of the right organ), and maintains the finger-tip in that position, while with the left hand the grooved director is passed under and along the right forefinger till its point reaches the apex of the seminal vesicle under the right finger-tip. In this position the director is firmly held while the right forefinger is withdrawn.

Figure 5 shows the next step in the operation, which is the passing of the knife along the groove of the director. After the knife reaches the apex of the seminal vesicle at the point where the end of the grooved director is fixed, its shaft is lowered so that the belly of the blade lies against the seminal vesicle, and a cut of an inch and a quarter to an inch and a half is made longitudinally into the seminal vesicle so as to lay that organ open its entire length. Often the first cut may not be deep enough to accomplish its purpose. If a digital examination shows the cut to be incomplete, the director should be replaced and a second cut made in the line of the first. Sometimes, especially in sclerous cases, three or more cuttings may be required before a thorough opening of the seminal vesicle has been accomplished. Should it be desired to open the floor of the bladder for drainage, the end of the director should be placed against the wall at a point midway between the seminal vesicles and far enough back to be in a line with their apices. The knife should then be slipped along the groove and the bladder wall perforated, after which the director should be immediately slipped into the bladder and maintained there to guide the introduction of a drainage tube.

Figure 6 shows the method of packing the cavities of the seminal vesicles and the deep limits of the dissection. Two strips of gauze are employed, one for each side. Here the packing is being introduced into the right opened seminal vesicle, the right forefinger of the operator being maintained in the opening to crowd in and arrange the placing of the gauze as it is being pushed in by the operator's left hand, aided by a blunt-ended clamp. In placing the packing, a space should be left between it and the rectal wall for the drainage tubes.

Figure 7 shows the two drainage tubes in place above the packing, the lower portion of the dissected flap having been fastened in place by lateral sutures.

Figure 8 shows the completed operation previous to the placing of the dressing. The two ends of the gauze packing are left protruding, to facilitate removal. Safety pins have been passed through the tube ends, and to these have been attached strips of adhesive plaster, so as to guard against a premature slipping out of the tubes.

The following clinical reports serve to illustrate the surgical procedure advocated in cases coming under observation long after the original injury:

CASE 1.—Man, aged 23, on entering the City Hospital could not walk without support, nor could he void urine. All the urine leaked away through a perineal sinus. There was constant and severe pain in the region of the pelvis. Several months before, while working in a mine, his pelvis had been caught between two cars. Retention followed the pelvic injury. He was sent to a local hospital, where a perineal opening was made, and it was out of that opening that the urine was passing when he entered the City Hospital.

Fig. 6.—Placing the packing.

Roentgenoscopy revealed that there had been a fracture of the pelvis. The injury had also caused thorough disorganization of the deep urethra, so that complete occlusion had resulted. Rectal examination showed marked tumefaction of the postprostatic tissues, and any pressure there caused extreme pain. The patient was put in the knee-chest position and the seminal vesiculotomy dissection was made. Before this dissection had extended beyond the prostate, the anterior limit of the dependent area of extraperitoneal extravasation was opened, and when completed a large chamber was exposed occupying the entire postprostatic space. Com-

municating with this chamber was an opening through the trigonum sufficiently large to admit the forefinger. To the right of the vesicle neck, the chamber extended upward into the space of Retzius. A suprapubic counter-opening was consequently made, and a connecting chamber occupying the space of Retzius was thereby exposed, and another vesical rent found connecting the bladder cavity directly with the space of Retzius. From the space of Retzius, the burrowing had extended to the left under Poupart's ligament and into the upper thigh. An opening was consequently made into the upper thigh so that a drainage tube from the suprapubic opening could be there passed out. A suprapubic drainage tube was also passed through the space of Retzius to the right of the vesical neck, through the postprostatic space, and out at the base of the perineal dissection. Another good-sized tube was passed along the perineal incision and into the bladder through the rent in the trigonum. This was for vesical drainage. The operation was followed by marked relief.

Two months after the first operation the deep urethra was resected and made pervious. The patient now—four months after the first operation—is about, using a cane, in comparative comfort. The suprapubic opening into the space of Retzius has not as yet been allowed to close, so as to afford a vent in case of persisting suppuration. The flow of urine, likewise, has not yet been diverted from the perineum to the urethra. The perineal opening can, however, be closed by a slight plastic operation whenever it may be deemed advisable.

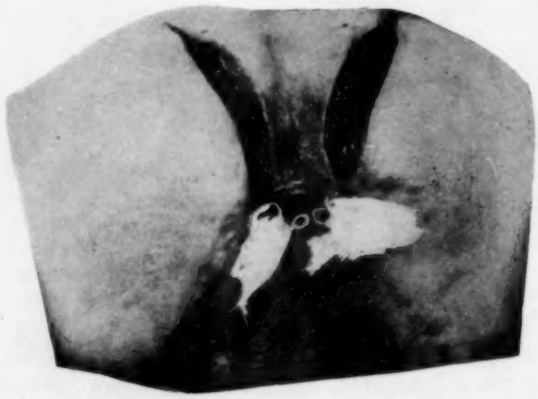


Fig. 7.—Drainage tubes and packing.

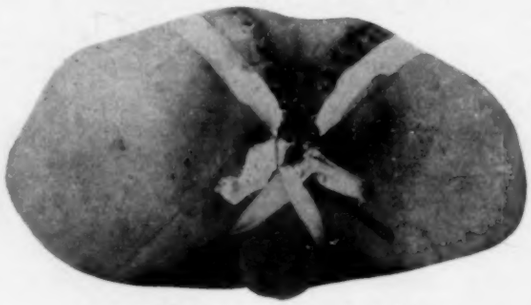


Fig. 8.—The completed operation.

Case 2.—A man, aged 31, entered the City Hospital with a history that two years before a log had fallen on him, causing rupture of the bladder, together with laceration of the deep urethra. Suprapubic cystotomy had, at the time, been performed. Eight months later, a perineal section had been performed to rid the patient of traumatic stricture formation and to avert threatened retention. His chief complaint on entering the City Hospital was impotence, which had been complete ever since the accident. On this account, his wife had left him. There was also marked pain in the sacral region after much exertion, together with loss of force to the stream on urination. Rectal feel showed marked infiltration and tumefaction of the postprostatic tissues, digital pressure causing severe pain. There was still a marked traumatic stricture involving the deep urethra. Before the accident the patient had been normal and vigorous sexually, and there was no antecedent history of gonorrhea.

The opinion being held that the postprostatic tumefaction was due to urinary extravasation, the patient was put in the knee-chest position, and the seminal vesiculotomy dissection employed. A burrowing extravasation cavity, in which lay both seminal vesicles, was opened. This cavity was found to communicate with the bladder by way of a rupture through the middle of the trigonum. This rupture was large enough to admit the tip of the forefinger. The extravasation had not burrowed beyond the confines of the postprostatic space. The involvement of the seminal vesicles evidently accounted for the impotence. Both these organs were opened, as in an ordinary seminal vesiculotomy, and their cavities, as well as that of the extravasated area, packed. A perineal tube for urine drainage was passed into the bladder through the opening caused by the rupture.

Two months after this operation, the deep urethral stricture was resected. This patient is now completely well, has regained his sexual stamina, and is at work as a laborer.

Case 3.—A man, aged 40, came to hospital with the history that seventeen years before he had fallen fifteen feet, striking his sacrum against a wheel. Before the accident he had been strong, and up to that time he had never had sexual intercourse. After the accident he was in bed for a long time, and had great difficulty with urination, together with pain, but as the accident had occurred seventeen years before it was impossible to obtain exact clinical data. Four years after the accident he married and had one child. He had never been well since the accident, owing to severe sacral and suprapubic pains, increased on exertion. These pains were often accompanied by chills or chilly sensations. The sexual function had never been strong since marriage, and for many years he had not indulged in coitus at all, owing to the fact that the act served to exacerbate his pains and chills. At present he had no complaint regarding urination, and the urine was normal. He had a great dread of urethral instrumentation, as such treatment caused him much after-suffering from an exacerbation of his symptoms. Neurasthenic symptoms were marked. In fact, neurasthenia had been the usual diagnosis given to account for the symptoms. Rectal feel showed the postprostatic space filled with scar tissue which involved both seminal vesicles. Digital pressure against this region provoked great pain and could not be tolerated. There was no stricture. The cystoscope showed little except that in the region of the trigonum the blood-vessels were enlarged and irregular. There were also in that area patches of scar tissue.

The patient was put in the knee-chest position and the seminal vesiculotomy dissection employed. In this case no actual extravasation cavity was found, probably owing to the fact that the accident had been so long ago; but the dense cicatrix was cut through, the floor of the bladder liberated, and also the seminal vesicles, after which both these organs were opened. The space was packed and drained.

Complete recovery, with relief of all symptoms, followed.

252 Lexington Avenue.

ABSTRACT OF DISCUSSION

Dr. A. G. Rytina, Baltimore: In connection with Dr. Fuller's paper I will mention a case that is perhaps a surgical curiosity, and I report it to find out if any one has seen such a case. About six or eight months ago a young man entered the Physicians and Surgeons' Dispensary complaining of burning on urination. While one of my assistants was introducing the cystoscope into the posterior urethra the patient gave a sudden lunge. My assistant, in determining the bladder capacity, noted that it was very large, about 1,000 c.c. He then allowed the fluid to return and in all about 600 c.c. returned. The man was asked to strain, and a small amount of fluid feces came back. The assistant suggested that he had gone through into the rectum, and to

make sure he put his finger into the rectum and felt the back of the cystoscope. I pleaded with the man to undergo an operation but he refused. I notified the resident to call me up as soon as the man came in. Next afternoon the resident called me up, saying the man was feeling fine and was passing perfectly clear urine. I kept the man in bed and perfectly quiet for two weeks, and from that time to this he has passed perfectly clear urine and has never had any trouble from his accident.

DR. D. N. EISENDRATH, Chicago: I have had quite a large experience with both extraperitoneal and intraperitoneal rupture of the bladder, and I believe that if I had followed Dr. Fuller's suggestion my mortality probably would have been about 75 per cent. instead of about 10 per cent. in twelve cases. The only objection I have to Dr. Fuller's method of drainage is that it is altogether too radical for a man who has had as severe an injury as a recent fracture of the pelvis or a recent extraperitoneal rupture of the bladder. Every one of the cases I have had has been diagnosed within the first seventy-two hours, and it sufficed in all those cases simply to drain the bladder through a tube suprapubically, without any attempt to repair the rent in the bladder, and to drain the extravesical space through suprapubic drainage. With regard to the diagnosis, the chief point that I have always impressed on house surgeons is that if a man has met with any injury involving the region of the pelvis, the first thing the surgeon should do is to catheterize that patient if he can; if he cannot catheterize him, not to use any force at all, but to percuss above the pubes and if there is any dulness there to send word to someone at once who is more skilled in catheterization than he. If both then find that they cannot catheterize the patient, this means a rupture near the trigon, usually at about the junction of either the fixed portion of the urethra or at the anterior portion where it is attached to the symphysis pubis. If that is the case, the best way to do is not to try to do an external urethrotomy, but to do a retrograde catheterization, no matter whether the rupture is of the extraperitoneal portion of the bladder or of the deep urethra. It is better not to waste time, but to go in from above, and if one finds a rupture of the urethra one can retrograde catheterize the patient much more quickly. If one has an extraperitoneal rupture of the bladder the bladder can thus be drained.

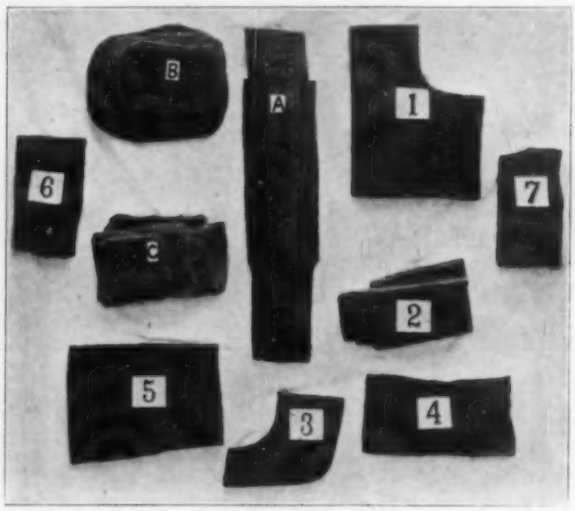


Fig. 1.—Pads used in the treatment of scoliosis.

DR. EUGENE FULLER, New York: Dr. Eisendrath seems to be doing with his patients exactly what in my paper I said was generally done with them, that is, they are discharged from the hospital crippled, of no earthly use; not dead, but they might as well be. If you get a pus pocket outside of the bladder in which material has extravasated how is a patient going to get well by catheterizing or by fussing with him? He does not get well. This radical operation of mine is not horrible because you do not as a rule have to tie a blood-vessel in its performance and it is of slight danger. I have done this supposedly horrible dissection over six hundred times with but one death and that person died because he had granular kidneys. An operation that is terrible ought to have a bad record, and this one has not. It is technical. There is no use jumping on it because it is technical, and trying to sidetrack it on that account. It is far better to take a cadaver, do a little dissecting, thus mastering the technic and then to try the operation. The whole thing is to get these patients well. These cases belong to a neglected branch of surgery, and the old way of doing nothing with them except seeing that they have a pervious urethra and leaving them alone does not cure them. The cases I reported were in a lot of derelicts who had been the rounds. The patients had been in four or five hospitals when I took hold of them, and I cured them. Dr. Pilcher wanted to know if I so treated these patients at the time of the injury. These are the cases in which the injury had taken place a long time before and in which extravasation is seen. If one gets a man with a rupture of the bladder immediately after the injury one naturally then would open suprapubically and drain as I stated in my paper. Then one probably would get ahead of the extravasation and prevent its occurrence.

THE MECHANICS OF A PLASTER-OF-PARIS CAST IN FIXED LATERAL CURVATURE OF THE SPINE *

E. G. ABBOTT, M.D.
PORTLAND, ME.

It is absolutely necessary to know the exact position of the anatomic parts entering into a deformity in order to correct it.

Overcorrection or the reversal of the deformity is necessary to effect a cure. Overcorrection is obtained by pushing the parts back through the same arc which they passed when the deformity developed, and thence through a similar arc to a position exactly opposite to that of the original.

In order to know through what arc the parts travel in the development of a deformity, they must be traced from their normal positions to that of the deformed.

Scoliosis is developed from a normal physiologic position and becomes pathologic only when the individual is unable to reverse this position at will. Scoliosis in its beginning and through its development to a certain stage is a position of flexion, plus lateral bending plus rotation of the bodies of the vertebrae toward the convexity of the lateral bend.

It is first a normal physiologic position assumed at will, becomes pathologic after habitual assumption and may be easily created in the normal spine.

With a knowledge of the position of the parts in a normal spine, the position of the parts in a scoliotic spine and the arc through which they have traveled in the development of the deformity, it is possible to overcorrect or reverse the deformity, if it is borne in mind that these parts must pass back over the same route which they traversed to a normal position and thence through a similar arc to a position opposite to that of the original. Now the position must not only be understood in a general way, but an exact knowledge of every case must be obtained in order to

* Read before the Section on Orthopedic Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

apply intelligently the necessary force to reduce the deformity. Without this exact knowledge of the position of the parts in scoliosis, the force may be applied so that the deformity is increased rather than lessened.

The spine must be flexed, pressure made laterally against the curve and against the rotation, and if this is done with precision the spine must go into the overcorrected position, unless it is too firmly fixed in its deformity.

The principle is the same in all cases, but its application differs. Let us note at this point what, in a general way, is the position of overcorrection, before proceeding to analyze just how this may be obtained. Using the familiar figure of a boy sitting in an improper attitude at a desk writing, it may be seen that the position is that of flexion, plus lateral bending, plus rotation of the bodies of the vertebrae toward the convexity of the lateral curve, and there may be one or two curves according to the position of the pelvis.

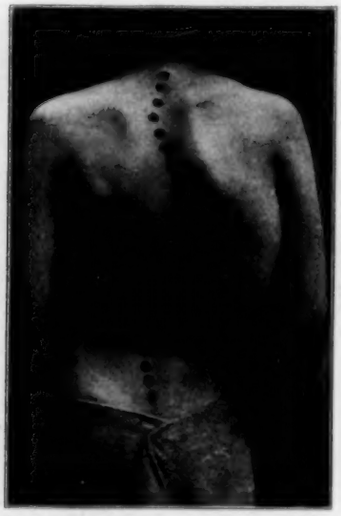


Fig. 2.—Patient with scoliosis.

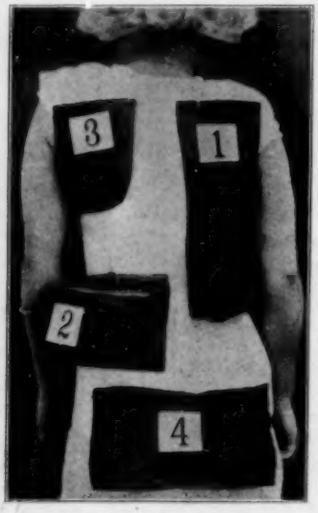


Fig. 3.—Showing method of application of posterior pads.

Fig. 4.—Application of anterior pads.

Now, in order to reverse this position we simply turn the child to the other side and the parts reverse their position, but the flexion remains unchanged. This is the position of scoliosis, be it physiologic or pathologic, and all other changes are secondary.

After the patient is placed in the position of flexion and the straps applied to pull the parts toward the position of overcorrection, the corset must be so shaped that the pressure against the fixed points continues to force the parts into an overcorrection. It is scarcely necessary to state that various forms of apparatus for pulling the patient into position might be used, but the exact position into which the patient must be forced must be borne in mind, and it is the application of a corset which will allow of reduction of the deformity that seems to present some difficulties. The corset must be heavily padded with saddler's felt, cut in suitable pieces according to the size of the patient. The technic may, perhaps, best be described by diagrams and illustrations showing just where force is applied, the fixed points in the corset and the necessary pads both permanent and removable used in the corset. Figure 1 represents all that are usually required, and the permanent ones, or those left in the corset, against which pressure is borne, are numbered and those used to shape the corset are lettered.

The positions which they occupy may be shown by placing them on a patient with scoliosis (Fig. 2). The permanent pads are placed posteriorly as shown in Figure 3, and anteriorly as in Figure 4. The posterior ones are fixed points in the corset. Pad 1 is composed of two pieces of felt placed over the bulging ribs, and so cut that it covers the shoulder blade and passes beneath the axilla. Pad 2 is placed in the lumbar region. It consists of several layers of felt so that firm pressure may be made against the left lumbar curve. Pad 3 is placed under the axilla and over the left shoulder. Pad 4 is placed across the sacrum. These four pads, 1, 2, 3 and 4, are points against which pressure is made and are never changed.

On the anterior surface of the body there are three pads, all permanent. Pad 5 passes across the thorax and Pads 6 and 7 are placed over the anterior superior spinous processes (Fig. 4). The removable pads are placed as in Figure 5. The long pad marked A is about 4 inches in thickness at the center and tapers at the ends. It is for the purpose of allowing more flexion. Pad B is placed over the concave ribs, and shapes the corset so that rotation may be overcorrected in the dorsal region. Pad C is placed in the lumbar region and allows the lumbar spine to overcorrect.

Three undervests, or coverings, are placed on the body. The permanent pads are put between the first and second cover and the removable pads between the second and third. The covers hold the pads in correct position, and also allow of easy removal of those to be taken out after the corset is finished.

Figure 6 illustrates the necessary straps to pull the patient into the proper position in a case such as shown in Figure 1. Strap 1 passes around the axilla, making lateral traction on the upper end of the dorsal curve. Strap 2 encircles the thorax, making traction on the ribs which join the vertebrae at the apex of the dorsal curve. Strap 3 makes lateral traction on the lumbar curve at its apex. Strap 4 passes around

the pelvis and pulls against the lower end of the lumbar curve. Strap 5 is a rotator which is attached to Strap 2, and passes across the thorax and directly back. Strap 6 is attached to Strap 1 and pulls the low shoulder forward and upward. Strap 7 passes over the high shoulder and pulls it backward. Strap 8 is attached to Strap 3 and is a rotator which pulls against the thick pad of felt marked 2. Strap 9 tilts the pelvis. With the pads placed on the patient as indicated in Figures 3, 4 and 5, and the straps applied as in Figure 6, traction is made on them and the body is pulled in the direction of overcorrection. The plaster corset is then applied. As soon as the plaster hardens, windows are cut as in Figures 7 and 8. The window or slit in Figure 7 is for the purpose of inserting felt pads to induce further flexion. The windows in Figure 8 are over the removable pads B and C, and allow the depressed ribs and lumbar region to be pressed backward. At Point 1 (Fig. 8) the spine is 4 inches in front of the cast, that is, the spine may be further flexed 4 inches before it comes in contact with the plaster. Points 2 and 3, same figure,

Fig. 5.—Showing position of removable pads.

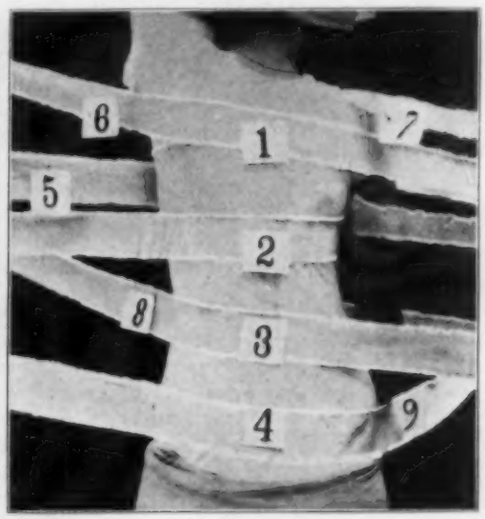


Fig. 6.—Straps used for pulling patient into position.

Fig. 7.—Showing window or slit for inserting felt pads to induce further flexion.

are fixed points which cannot change. When felt is inserted over the thorax through the slit or window (Fig. 7), the spine flexes further, carrying with it all of the body except those parts under Points 2 and 3, Figure 8, and if the deformity is not too extreme, it is possible to obtain overcorrection by inserting enough pads over the thorax to force the spine against the corset at Point 1 (Fig. 8). Should the lateral curves still remain, the corset is cut away along the dotted lines under the axilla and hip, and pads are inserted at 4 and 5.

Care must be exercised that the traction is applied at the exact point needed. For example, if force is used against points which are apparently opposite the part of the curve against which pressure is needed, the deformity is made worse. It must be borne in mind that the ribs run downward as well as outward, and pressure should be made at proper levels.

As already stated, the position into which the patient must be placed in order to overcorrect must be thoroughly understood in every case, and the force must be applied with precision. Unless such precaution is taken, more harm than good may be done.

ABSTRACT OF DISCUSSION

DR. PAUL A. MCILHENNY, New Orleans: I have not been able to get results, except in those cases in which we have what Dr. Abbott terms a "total scoliosis," or one in which there is only a slight curve in the lumbar region. I have followed, as closely as I could, instructions given in the various publications that I had access to; and I have obtained results in the moderate form of dorsal curve. In the marked cases of structural scoliosis, however, with a marked compensatory curve in the lumbar region, I have found an insurmountable obstacle, so far as I was concerned. Perhaps I am at fault. Other men have obtained these results in the double curves, as Dr. Abbott has, but I have not. There is some point in his technic, I believe, that I have missed; and I should like to get some light on why I cannot get a reduction of that compensatory curve or a correction of the primary curve, when I can get it in what we may term "total scoliosis" of the structural type.

DR. ROLAND MEISENBACH, Buffalo, N. Y.: Now that we are getting the results in the average type of structural lateral curvature of the spine, it will be necessary for us to consider more at length what can and what cannot be done for the severer types, which are so very common and which certainly require attention. In view of the recent progress in the treatment of scoliosis and the gratifying results obtained by Abbott's method in the average type of fixed lateral curvature, we should not give up the severe types in despair, but should attempt to do something for them. We must realize that the spine is not the only essential part of the patient, but that cardiac pressure, lack of excursion of the ribs, nerve pressure and visceral disturbances should be thought of. In the compound curves, the condition is even more exaggerated, and if carefully followed, much good can be done the patient, not only so far as the general symptomatology is concerned, but also in the actual anatomic straightening of the spine. The questions arise: How far shall we correct, and how much traction shall we apply, and what is the patient's endurance for correction? The last can only be determined by a thorough examination by internists, bacteriologists and pathologists, and by the orthopedist. I have had this emphasized many times, and I seldom undertake a case of a severe type unless I have had complete records of the patient made by a number of men. In the average and severe types more correction can be obtained, with less danger to the patient, if this method is followed carefully by the orthopedist. Not only can more correction of the spine be obtained, but such symptoms as muscular twitching and indigestion will rapidly disappear. I further believe that the cases should be taken early, and also in the severe types should be vigor-

ously treated and not be allowed to become utterly helpless, even though the spine is not replaced in a perfectly straight line.

Dr. Henry W. Frauenthal, New York: I have used the Abbott method in a great many cases and from my experience I think that most men expect to get results too quickly. That is what I tried to do in the beginning, and I found that I was exerting too much pressure. This accounts for the fact that Dr. Abbott has increased the thickness of his pads to 2 or 3 inches. I think that if we have more patience and do not expect a perfect result in too short a time, and if we manipulate the backs very much as we do club feet that we try to correct without cutting, some of these bad backs will make a remarkable recovery. I have treated about a hundred and have got much better results than by any other previous method.

Fig. 8.—Showing windows for the insertion of pads.

Dr. H. Winnett Orr, Lincoln, Neb.: Having had the privilege of acquiring this method directly from Dr. Abbott, two years ago, I have treated more than fifty patients since then by the Abbott method. One thing that I have learned from my experience in these cases is that it is more important to begin an Abbott treatment with a thorough comprehension of Dr. Abbott's principles of pathology and treatment than it is to endeavor to use exactly the same technic as he employs. Dr. Abbott has himself obtained better results with the method up to the present time than has anyone else who has tried to follow him. I venture to say that by mastering the principles of the method and then working out a technic suitable to one's own hands and fingers, the treatment of these patients will give much more satisfactory results than can be obtained in any other way. I have refused no case of this kind since Dr. Abbott showed me how to treat them, not because I felt that I could cure all, but because I found even the worst susceptible of some improvement. I treated over again six or eight patients in whom I had formerly failed to gain improvement by other methods. All these patients are loyal and enthusiastic about the Abbott method.

Dr. Charles A. Parker, Chicago: My experience is not so great as that of some others, yet I have handled quite a number of cases. One sees quite a number of them in Chicago. In the severe types of cases that one most wants to help I have seen improvement, but no cure. I do not want to say this to discourage; it is quite probable that Dr. Abbott has cured many of these patients, but the bad cases, in my experience, do not recover. There are several reasons for that I think. We have been showing the congenital deformities in scoliosis. Scoliosis high up in the neck takes in the upper dorsal region. The inherent conditions constitute another reason in the twisted vertebrae and transverse processes on the convex side. When lateral pressure is made on the ribs of the convex side with the leverage behind the center of the bodies, the tendency is to increase the rotation or flatten the angle of the ribs. The angle of the ribs has been increased in many cases, although the affected portion of the spine may be moved nearer the middle line.

Dr. James K. Young, Philadelphia: Dr. Abbott has a great advantage over other men practicing this branch of the profession because he can keep his patients in his hospital as long as he desires. So long a time is required for a cure that much difficulty is experienced in this respect. I have seen him treat patients in his own hospital and I have much confidence in his method. The mild functional forms of scoliosis do not require forcible correction, as they can be treated best by gymnastics and postural methods which I have been successfully using for over twenty years. I was glad to hear Dr. Abbott say at the meeting of the American Orthopedic Association in Philadelphia, that he took more time to treat severe cases, as this coincides with my experience in using his method. Certain forms of scoliosis are not suitable for this form of treatment, as severe paralytic deformity, supernumerary bones, empyema, rickets and softening of the bones of unknown etiology. Severe cases must be treated by a forcible method and in selected cases there is none so good as that of Dr. Abbott.

THE THREE CARDINAL CLINICAL SIGNS OF FRACTURE INTO OR NEAR JOINTS *

WALTER G. STERN, M.D.
Orthopedic Surgeon to the East Side Free Dispensary and to the Mount Sinai Hospital
CLEVELAND

The vast majority of fractures seen by the orthopedic surgeon are fractures into or near a joint, and of these too large a proportion are overlooked by the surgeon or practitioner rendering aid and are diagnosed as "sprains" or contusions. Roentgenologists affirm that at least 90 per cent. of all sprains coming to them for roentgenoscopy are really fractures of some sort and not sprains.

Be this as it may, few fractures about joints present all the usual classical symptoms of fracture, namely, crepitus, preternatural mobility or elasticity (Albert), deformity, angulation, shortening, loss of function, etc., either on account of an impaction of the fragments, incomplete fracturing or because one fragment

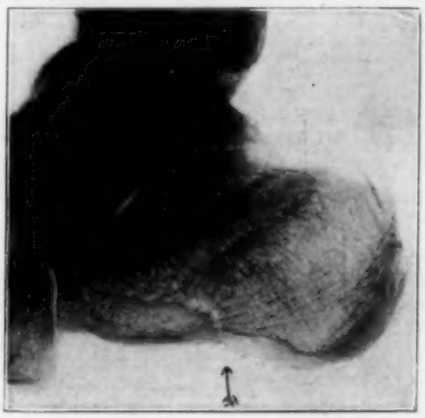


Fig. 1.—Avulsion fracture of os calcis (Case 1). Patient made a sudden jump to avoid being run over by an automobile. Diagnosed as "sprain" despite the pain, tenderness, swelling and ecchymosis which appeared a few hours after injury.

may be too small and too firmly attached to the structures of the neighboring joint or the parts too tender to permit of the necessary motion between the fragments for the elicitation of the foregoing symptoms.

* Read before the Section on Orthopedic Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

While the general surgeons, through whose teaching the practitioners have learned to depend solely on the presence of crepitus, preternatural mobility and loss of function for their ability to make a diagnosis of fracture, are lamely offering such terms as "juxta-epiphyseal sprain" and "sprain-fracture" as stop-gap compromises; and while, for instance, Rose and Stewart state that "the ligament (at the lower end of the radius) is stronger than the bone and in the majority of cases on the cadaver pulls out the bone surface or causes by its stress a 'sprain-fracture' across the impact-receiving area," Helfreich, than whom no one has made better cadaver experiments on this subject, knows nothing of these hybrids and shows such cases to be incomplete, bending, arrachment, compression, fissure or torsion *fractures*.

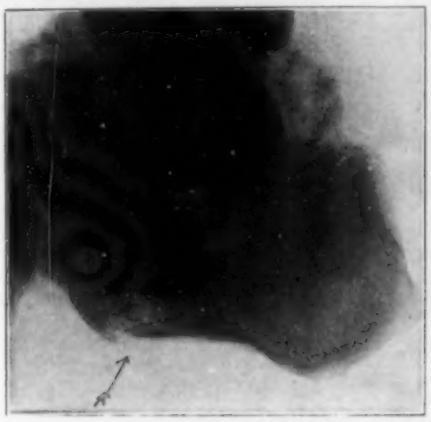


Fig. 2.—Fractures of os calcis (Case 2). Patient walked for two weeks; came to office unaided except by adhesive plaster strapping; foot much swollen and badly discolored when roentgenogram was taken. Pencil tenderness marked.

Fig. 3.—A "sprained" ankle now the basis of a malpractice suit (Case 3).

On the basis of a considerable experience with such atypical fractures, confirmed as such by the use of the Roentgen ray, I offer the following triad of symptoms, which I have always found present in the traumatic fractures of healthy bones as sufficient for a diagnosis, even when present alone, without any or all of the usual classical signs:

1. Localized bone tenderness over the fracture point or "pencil" tenderness.
2. Swelling, beginning at and spreading from seat of fracture.
3. Bloody discoloration or ecchymosis, spreading from this vicinity.

The fracturing of healthy bone gives rise to a greater or lesser degree of spontaneous pain, which, however, the fortitude of the patient may completely hide. While the entire member is usually sore to the touch, firm pressure about the seat of fracture will reveal a definite, constant point or line of great bone tenderness over the fracture. Often the tenderness is so exquisite that the patient can bear but the slightest touch to the fractured part of the bone, while pressure elsewhere is noticeably much less painful. It has not been unusual to find fractures so insensitive as to cause little loss of function, exhibiting the same marked bone tenderness. Palpation or pressure with the rubber tip of an ordinary lead-pencil so simplifies the mapping of this symptom that I have chosen the term "pencil tenderness" to describe it. This symptom persists for days and even weeks; in one case of undiagnosed and untreated fracture of the lower end of the radius, it was easily elicited as late as four weeks after the accident. While too much diagnostic importance should not be given to the presence of the bone tenderness alone, in the absence of signs of inflammation it is extremely suggestive of fracture and calls for the use of the Roentgen ray.

The characteristic swelling of fracture appears at once and is at first colorless. It arises and spreads from the injured area. It is doughy yet firm, hard but not inelastic, and is quite unlike the swelling of an inflammatory process.

The ecchymosis is dependent on bone hemorrhage for its production and does not make its appearance for at least twenty-four hours after the injury, in contradistinction to the discoloration caused by the bruising of the skin and soft parts, from trauma. The other structures in the neighborhood of a joint, namely, ligaments, capsule, tendons, bursae, etc., do not possess such a free blood-supply that their injury or rupture should cause this characteristic extravasation of blood. Ecchymosis is said never to occur in the fracture of the bones of the finger. I am positive that I have seen it in the few early cases coming under my observation. The diagnosis of finger fractures, however, should give little or no trouble.

Roentgenograms, taken stereoscopically or at right angles to each other, should always be made to confirm this symptom complex. Even if the plates are good ones, negative roentgenographic findings should not be held to be final *if the clinical symptoms persist*,

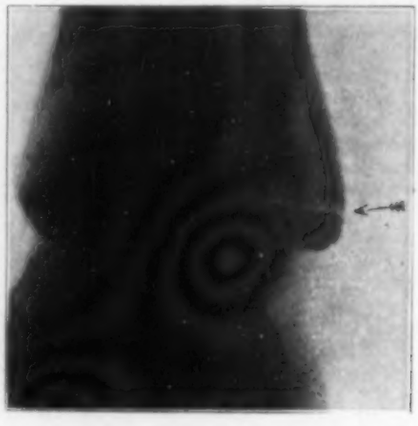


Fig. 4.—Type of injury often diagnosed as sprained ankle (Case 4). Patient twisted ankle getting off of car. No crepitus, etc.

Fig. 5.—Spiral fractures of tibia (Case 5); no crepitus, deformity, etc.; the only symptoms were pain, "pencil tenderness," swelling and discoloration.

but another series of plates should be taken from ten to fourteen days later.[1] In preferring to trust the per-

1. Compare An Interesting Decision of a Law-Court on a Wrong Diagnosis, Vienna Letter, THE JOURNAL A. M. A., May 2, 1914, p. 1416. In this case the early roentgenograms showed no fracture; the patient, however, evidently presented the symptom complex herein described, yet he soon walked on his injured foot. Roentgenograms taken some time later clearly showed a fracture of both the tibia and fibula.

sistence of this symptom complex rather than the roentgenographic plates as ordinarily taken, I have in several cases been able to make the correct diagnosis of fracture and have it confirmed later on by other roentgenographic findings. The aspiration of the joint fluid has at times changed the roentgenographic verdict from negative or doubtful to positive.

Fig. 6.—Undiagnosed fracture of head of tibia (Case 7).

Fig. 7.—Undiagnosed and untreated fracture in hand (Case 9) from baseball.

I have seen fractures of every joint of the body, excepting the vertebral column, in which all the usual classical signs have been absent, which have been correctly diagnosed on the strength of this clinical triad. The following examples will suffice:

CASE 1 (Fig. 1).—While jumping out of the way of an automobile the patient felt something give way in the heel. Has some pain, but can walk with a limp: diagnosed as sprained ankle. No crepitus, preternatural mobility, etc. Pencil tenderness, swelling and ecchymosis present six days after injury.

CASE 2 (Fig. 2).—Patient had foot caught in an elevator; taken home in buggy; limped from buggy to house; seen soon afterward by a physician. Line of bruise was present in skin; pain and swelling present, but there was no crepitus or preternatural mobility. The following day he walked, with the aid of a cane, one-half mile to the street-car, then one-fourth mile to the company surgeon's office, where he had ankle strapped under diagnosis of contusion and returned the same way he came. Roentgenogram is said to have been doubtful. Clinical triad present at end of second week.

CASE 3 (Fig. 3).—Patient fell from scaffold and was taken to hospital. No crepitus or other common signs of fracture. Diagnosed and treated for sprain. Presents pencil tenderness, swelling and ecchymosis.

CASE 4 (Fig. 4).—Patient fell from street-car and twisted ankle; can walk with a lin.p and works daily as a seamstress. There is much swelling, extreme bone tenderness and some discoloration. Case diagnosed by attending physician as a sprain.

CASE 5 (Fig. 5).—Spiral fracture of tibia, all classical signs of fracture absent. Exquisite pencil tenderness, marked swelling, slight ecchymosis present.

CASE 6.—Patient kicked by a horse. No crepitus, shortening, loss of function, etc. Patient can limp on this leg. Marked pencil tenderness two weeks after injury. Attending physician could not elicit crepitus immediately after injury, and on account of swelling diagnosed periostitis.

CASE 7 (Fig. 6).—"Barked shin" in fall from a low buggy. Patient walks with aid of single crutch. No crepitus, preternatural mobility, shortening, etc. There is a tense tumor above and to inside of patella. Motion of knee-joint almost free. Line of tenderness over head of tibia, with swelling and discoloration. Puncture of knee-joint evacuated bloody fluid containing fat globules. Roentgenogram after puncture clearly positive of fracture.

CASE 8.—Fracture at surgical neck of humerus; both attending physician and insurance examiner hold case to be rupture of the biceps tendon on account of the absence of all classical signs of fracture.

CASE 9 (Fig. 7).—Patient hit by pitched ball; has been able to use hand freely but with some pain; fracture was never suspected. After two weeks clinical triad presented the only symptoms of fracture readily demonstrable.

CASE 10 (Fig. 8).—Fractured scaphoid of wrist. Point tenderness, swelling, ecchymosis and immobility of joint are the only symptoms of fracture present.

CASE 11 (Fig. 9).—Automobile fracture from backfire. Patient drove automobile several miles to see surgeon, who found none of the ordinary symptoms of fracture present and called condition a "sprained" wrist. Clinical triad present on the third day.

CASE 12 (Fig. 10).—Fracture of lower end of humerus, diagnosed as sprain. Patient has limited motion in elbow-joint together with clinical triad. Ordinary attempts to elicit crepitus and preternatural motion unsuccessful.

CASE 13 (Fig. 11).—Impacted fracture of humerus diagnosed as "torn ligaments." Shoulder motion quite free. Arm very painful; no shortening, deformity or crepitus. Swelling and bloody discoloration marked to the elbow-joint, which is held very stiff.

CASE 14.—Patient was thrown from a swiftly moving car, striking pile of stone with hip. Fluoroscopic examination at a hospital is said to have shown a fracture of the femur just above knee. Patient asserts that knee was less painful than hip "bruise." Had no bloody discoloration about knee, but thigh was discolored and tender for many weeks. Discharged from hospital with plaster cast to knee. Has complained of soreness in the hip for the past two years. Careful roentgenographic examination now shows that there never

Fig. 8.—"Sprained" wrist (Case 10). Fractured scaphoid. Diagnostic triad present on fourth day.

Fig. 9.—"Sprained" wrist from backfire of engine (Case 11). Patient steered large automobile many miles after injury occurred.

had been a fracture in the neighborhood of the knee, but there existed an easily diagnosed thickening and fracture of the greater trochanter.

COMMENT

Granted that crepitus is not essential in making the diagnosis of fracture, violent attempts to elicit same are unjustifiable as well as brutal.

An anesthetic is as unnecessary in making the diagnosis of fracture as it is in arriving at a diagnosis in hip disease.

Every suspected fracture should be roentgenographed.

Cases which will show crepitus and preternatural mobility under an anesthetic will show preternatural elasticity without one (Albert).

Ninety per cent. of all sprains coming for roentgenography or consultation are fractures.

When all the usual classical signs of fracture are lacking, the presence of localized bone tenderness, swelling and bloody discoloration alone is diagnostic of fracture.

Fig. 10.—"Strained" elbow (Case 12).

Fig. 11.—Fractured humerus diagnosed as torn ligaments and "sprain" (Case 13). Diagnostic clinical triad marked.

Fig. 12. — Undiagnosed spiral fractures of tibia and fibula. Patient walked into East Side Free Dispensary unaided, two days after injury.

The old adage "a sprain is worse than a break" is based on faulty diagnosis and subsequent lack of proper treatment.

821 Schofield Building.

ABSTRACT OF DISCUSSION

DR. F. J. COTTON, Boston: This paper brings out an interesting point relative to the diagnosis in these old cases. A great many cases are overlooked, because we have subconsciously expected to find the ordinary classical signs of fracture. I am going to suggest another phrasing and that is: If there are local signs of injury where there is no reason to think the force of impact took place, it means fracture. This is phrasing backward what Dr. Stern said about the local signs.

If a man falls in a sitting position, and subsequently develops tenderness in the back, it is probable that that man has a broken back. He did not hit his back when he fell, but something in his back gave way. I think that these cases may be more safely tested by that rule than by any other if it is added that it is particularly true in cases in which there are no signs of local impact. One can get the localized tenderness and ecchymosis over the bone, if a patient gets a blow, and can confirm the diagnosis by means of the Roentgen ray. Dr. Stern's paper calls attention to the fact that we are not dealing with sprains but with real fractures. We should have proper terminology for these obscure injuries around the joints.

DR. FRANK E. PECKHAM, Providence, R. I.: Dr. Stern said that the roentgenologists claim that of the cases presenting themselves for their observation as sprains, 90 per cent. were true fractures. You should not reason from that, however, that 90 per cent. of all sprains were fractures; because the patients presenting themselves to the roentgenologists have already had treatment and the condition has not been recognized. I should not think that 90 per cent. of all sprains—or rather, cases thought to be sprains—were fractures.

DR. G. W. STERN, Cleveland: I do not think Dr. Cotton has quite made the distinction that I wish to convey between the immediate discoloration of the parts from the bruising of the skin in the cases of fracture from direct violence, and the ecchymosis due to bone hemorrhage which makes its appearance about twenty-four hours after the injury. It is this latter type of bloody discoloration which, with localized bone tenderness and swelling, make up my diagnostic triad. In cases due to indirect violence I believe Dr. Cotton's trite aphorism expresses my thought quite happily. There are certainly such injuries to the ligaments and other soft structures of a joint as are known as "sprains" or "strains;" but the laity and, indeed, most physicians are wont to call any painful injury in the neighborhood of a joint, outside of a most outspoken fracture, a sprain. With such cases my deductions—of 90 per cent. being fractures—do not deal. On the other hand, it is equally true that almost all of the cases that are seen by the roentgenographer or consulting surgeon in which the symptoms of "sprain" have persisted or are severe, are true fractures. This is not only my own observation but also that of the present president of the American Roentgen-Ray Society.

The Need of General Culture as a Condition of Progress.—In the realm of ideas there is no such thing as spontaneous generation. Those who seem the originators of great movements are those who have been brought under great influences. Apparent exceptions to this rule, like Shakespeare or Darwin or Lincoln, prove, on examination, excellent examples. There is little difficulty in tracing historically the continuity of human thought. It follows that we cannot hope for a generation of original thinkers unless we immerse our students in the stream of the world's thought. The most inventive mind must have material on which to react, and cannot strike out in a vacuum.—Walter Libby, *Science*.

PROPHYLACTIC VACCINATION AGAINST EPIDEMIC MENINGITIS

A SUPPLEMENTARY NOTE

J. H. BLACK, M.D.
DALLAS, TEXAS

In April, 1912, Dr. Abraham Sophian, then of the Research Laboratory of the New York Board of Health, and I conducted a series of experiments to determine, as well as laboratory methods will permit, the value of prophylactic vaccination against epidemic meningitis. Injections of meningococcic vaccine were made on ten medical students who volunteered for the work. The details of this work with the results obtained were reported in THE JOURNAL.[1]

Eleven months later I repeated these experiments to determine what, if any, immunity could be demonstrated after the lapse of this time. Eight of the original ten vaccinated students were accessible. The technic used in the complement-fixation studies was identical with that formerly reported. The results of this study were reported in THE JOURNAL.[2]

With the effort to make this work as nearly complete as possible, I undertook in May, 1914, twelve and twenty-four months from the second and first examinations, respectively, a repetition of the complement-fixation studies. Table 1 shows the results obtained. It will be seen that all but one of the seven students at hand gave decided fixation in a dilution of 1:20, this, two years after the date of vaccination.

TABLE 1.—COMPLEMENT-FIXATION

Case No.	Dilutions 10	20	30	50	Control
1	++	++	—	—	—
2	+++	++	—	—	—
3	++	++	—	—	—
4	++	+	—	—	—
8	+++	++	—	—	—
9	+	—	—	—	—
10	++	++	—	—	—
Pos. con.	+++	+++	+++	++	—
Neg. con.	—	—	—	—	—

TABLE 2.—COMPLEMENT-FIXATION

Case No.	1 Month	1 Year	2 Years
1	200	150	20
2	200	150	20
3	100	150	20
4	100	100	20
5	30	*	*
6	*	*	*
7	200	150	*
8	250	100	20
9	100	250	10
10	200	250	20

* Student not accessible.

Table 2 is a comparison of the fixation of each student at one month, one year, and two years, respectively, after vaccination. The figures in each column refer to the highest dilution at which fixation was obtained.

While it is recognized that experimental vaccination of healthy individuals in the absence of an epidemic and the detection of immune bodies in their blood is an indirect way of proving its efficacy, and that the method must finally be judged by its clinical application, we feel that we are justified in drawing the following conclusions from these studies:

1. Prophylactic vaccination produces a high degree of immunity in most cases, this immunity being demonstrable at the end of two years. It seems a justifiable conclusion that most persons prophylactically vaccinated may safely consider themselves immune for at least two years. Exceptions to this will, of course, be found.

2. Some individuals may show an actual increase in immune bodies at the end of one year over those demonstrable soon after vaccination.

3. Fixation occurred with the serum of the positive control who has recovered from meningitis, but this fixation did not reach as high dilutions as did that of some of those vaccinated.[2] This has previously been found also in some others recovered from the disease.

4. Experimental evidence warrants us in concluding that prophylactic vaccination is a measure of the greatest value in the control of epidemic meningitis.

1. Sophian, Abraham, and Black, J. H.: Prophylactic Vaccination Against Epidemic Meningitis, THE JOURNAL A. M. A., Aug. 17, 1912, p. 527.
2. Black, J. H.: Prophylactic, THE JOURNAL A. M. A., April 26, 1913, p. 1289.

TRICHOTILLOMANIA

RICHARD L. SUTTON, M.D., KANSAS CITY, MO.

We are indebted to the French school of dermatology, and particularly to Besnier,[1] Hallopeau,[2] Henri Fournier[3] and Brocq,[4] for the recognition and classification of the peculiar family of neurodermatoses which is represented by trichotillomania and dermatothlasia.

Trichotillomania, the *"trichomanie"* of Besnier, is an affection which is characterized by an abnormal desire on the part of an otherwise apparently sane individual to extract forcibly one or more of his own hairs.[5] The impulse is seldom cyclic, but is as sudden as it is uncontrollable, and Raymond's designation of *"tic de l'epilation"* is not an inappropriate one. The scalp, the eye-brows and lashes, and the beard are the parts most frequently attacked.

Dermotothlasia is a somewhat similar morbid state in which the affected individual possesses an ungovernable desire to rub, scratch or irritate the skin on one or several parts of the body.

TRICHOTILLOMANIA

Recently I had an opportunity to study two typical examples of trichotillomania.

CASE 1.—The first case occurred in a married woman of 27, an American by birth and a housekeeper by occupation, referred to me by Dr. Charles W. Gosney of Kansas City. The patient had always been of a nervous temperament, but her family history was negative insofar as nervous or cutaneous ailments were concerned. Two years prior to the time of consultation she first became aware of the fact that she had acquired the habit of frequently jerking hairs out of her eyebrows whenever she was worried or subjected to prolonged periods of excitement. Despite her efforts to combat the practice, the habit grew stronger instead of weaker. She had never suffered from pruritus or other irritation of the supraorbital regions, and could not account for the propensity to remove the hair from these particular localities. The attacks were confined principally to the inner extremities of the brows, where the hairs protruded forward and were easy to grasp. It did not appear to matter which hand was used in the process of extraction. As the patient described it, she would have a sudden, intense desire to pull out one of the hairs (normal individuals probably experience a somewhat analogous sensation at times regarding one of the stiff vibrissae of the nose), and a second later she would be gazing at the freshly extracted appendage with its partially adherent root sheath.

1. Besnier, E.: Monatsh. f. prakt. Dermat., 1889, ix, 572.
2. Hallopeau: Ann. de dermat. et de syph., 1889, Series 2, x, 440; Bull. Soc. franc. de dermat. et de syph., 1891, ii, 157; Ann. de dermat. et de syph., 1894, Series 3, p. 541.
3. Fournier, Henri: Jour. malad. cutan. et syph., April, 1898.
4. Brocq: Traite Elementaire de Dermatologie Pratique, Paris, 1907, ii, 398; Jour. des pract., March 26, 1898.
5. "La trichotillomanie consiste essentielment en une impulsion qui pousse les subjects a arracher des poils; ce besoin de pratiquer l'avulsion constitute une veritable manie, et nous l'avons observee sans qu'il y ait de prurit notable" (Brocq).

The patient was a muscular young woman, with brown hair and eyes. Her chin was firm and well set, and in her general appearance there was nothing suggestive of hysteria or other mental ill-balance. The skin of the face was smooth and unmarked, with but a slight trace of seborrhea. The lower lashes were normal, but the upper were sparse and straggling, and it is exceedingly probable that the patient had removed many of these also. The eye-brows were apparently much abbreviated, and set wide apart, a space of more than 11 cm. separating the inner extremities. At a few meters' distance the impression given an experienced observer was

Fig. 1.—Trichotillomania, Case 1, showing absence of upper lashes and inner extremities of eyebrows.

that of a bilateral alopecia areata of remarkable symmetry. On closer scrutiny, however, it was found that a broad, indistinct, bluish band projected inward for a considerable distance from the terminus of each brow. When these areas were examined with a magnifying glass they were found to be thickly studded with new hairs, many of which were just reaching the surface. The patient stated that as soon as a fresh shaft was of sufficient length to be grasped it was promptly extracted. The hairs in the outer portions of the brows were undisturbed, and the smooth, regular manner in which they were arranged, together with the apparently normal condition of the underlying skin, indicated that the patient's statement regarding the absence of pruritus was correct.

CASE 2.—The second patient was a schoolboy, aged 14, a native and resident of Kansas, who was referred to me by Dr. H. P. Ball of Kansas City. This patient has been under the care of Dr. B. M. Barnett of Rosedale, Kansas, for some time, and I am indebted to Dr. Barnett for the privilege of reporting it here. The neurologic history of the family is negative. There is one other child, a boy of 9. He is mentally and physically normal. The patient has always been of a high strung, nervous temperament. When a baby he sucked his fingers incessantly. Later, he chewed his nails. He has been a "mouth breather" nearly all his life. Although not very robust, he escaped the more serious of the diseases of childhood, and has never had a more serious disorder of the nervous system than the "habits" above mentioned. He has never suffered from headaches or eye strain, and there is no history of eczema or pruritus of the scalp.

On examination the patient was found to be a slender, fragile boy, with a shrunken chest and a retreating chin. The palate was arched and misshapen, and the teeth poorly aligned. The eye-brows and lashes were unaffected. The hair on the top and right side of the head was normal, but on the left side practically all of the stiff shafts were gone, and only the soft, fuzzy tips of the downy new growth were to be seen. The denuded skin was soft, smooth and pliable, with no trace of scratch marks.

The little patient stated that it was impossible for him to resist the impulse which occasionally prompted him to jerk out the stiffer hairs. The tendency was greatest whenever he became worried or excited.

TREATMENT

In the first case, rest and freedom from worry, with liquor potassii arsenitis in gradually increased doses, internally, appeared to benefit the patient's condition. The application of various anti-pruritics, such as phenol, menthol, camphor and tar, apparently had no effect whatever. Hallopeau has suggested the use of gutta percha and similar dressings of an impervious character in these cases. Probably a better plan would be to ameliorate the habit by keeping the hair shaved off for a period of several months. This patient absolutely refused to allow the adoption of this measure, but I hope to give it a trial later on. Dr. Barnett reports that the second patient has been considerably benefited by the use of tonics, principally arsenic.

If one excludes Brocq's *"acne excoriee des jeunes filles,"* as I think we should, true examples of dermatothlasia are exceedingly rare. Occasionally, however, one encounters a case of acaraphobia closely bordering on dermatothlasia. The following is an example:

DERMATOTHLASIA

CASE 3.—M. P., female, spinster, physician, aged 52. This patient first consulted me in October, 1909, regarding a disorder which at first glance appeared to be a generalized pruritus. The disease had begun, three years before, with a slight itching of the skin on various parts of the body, and had continued at irregular intervals ever since. The integument was soft, moist and apparently normal, and there were no signs of senile atrophy. The urine contained considerable quantities of indican, but no albumin or sugar. The blood-pressure was not excessive. The hemoglobin was usually below 70 per cent. The cranial hair was short, dry and matted, and the scalp rough and scaly, probably a result of frequent and violent manipulation with the patient's nails. There were no signs of seborrhea or seborrheic dermatitis on the face or over the sternum. There was no hepatic tenderness, and the patient was not jaundiced. The woman's principal complaint was that she had "bugs" in her skin. She would suddenly pounce on some small area, most often

Fig. 2.—Trichotillomania, Case 2, showing extent of hair loss on left side of head.

located on the scalp or limbs, rub vigorously for a few moments, and then triumphantly announce that she had captured one or more insects, and that they were contained in the minute, tightly rolled, oat-grain-like mass of epithelial debris that she had detached. Innumerable negative examinations of the material made no impression whatever on her, but left her as firmly convinced as ever that her integument was inhabited by a new species of small but exceedingly industrious insect that would eventually prove her undoing. On subjects other than this ailment the patient's mind was unaffected. She suffered but little from pruritus, but explained that the sudden development of a slight sensation

of formication in the involved areas always precipitated the attack of rubbing. The forcible removal of a few of the outermost corneous layers invariably had a soothing effect on her mind, and after she had carefully burned the material and its supposedly dangerous contents, she was perfectly at ease, sometimes for hours. The patient was under observation for three years, and during that time almost every conceivable remedy was tried, always without relief. When last seen, the patient's condition was practically the same as at the time of the first consultation.

Lathrop Building.

DERMATOLYSIS

WITH REPORT OF TWO CASES

WM. W. CADBURY, M.D., CANTON, CHINA

Recently I have come across two typical cases of the rare affection known as dermatolysis. The condition is defined in Stelwagon's Diseases of the Skin as a hypertrophy and looseness of the skin and subcutaneous connective tissue with a tendency to hang in folds, and has been spoken of as "loose skin," "cutis laxa," "cutis pendula" or "chalazodermia." It may be congenital or acquired. All parts of the skin share in the hypertrophy; it may be located in any part of the cutaneous surface of the body. There are no subjective symptoms and it is slowly progressive. The etiology is obscure though the disease sometimes begins at the site of an injury.

The condition shows no tendency to decrease but rather to develop. Operative measures have been employed successfully when the hypertrophied flap of skin was troublesome.

It appears that fibromatosis is sometimes associated with dermatolysis, as in one of the cases cited below. In fact, the relationship of these two conditions seems to be not unusual.

CASE 1.—P. S. O., a Chinese farmer, aged 33, was admitted to the hospital of the University Medical School, Canton, China, March 25, 1914, complaining of gastric distress, which was later diagnosed as gastric ulcer. Of rather slight build the patient presented a remarkable appearance on account of a large cutaneous flap hanging over the left side of his face. Over the back, chest and abdomen there were numerous fibrous tumors varying in size from that of a millet seed to a diameter of 1½ inches (Figs. 1, 2 and 3). The patient was below the average in intelligence and somewhat self-conscious of his peculiar appearance. He was discharged from the hospital April 7, in practically the same condition as on admittance.

Description of the cutaneous flap: This peculiar hypertrophic growth begins on the left side of the scalp at a point above the level of the eyebrows, falls down over the face entirely covering the left ear, which projects from the inner surface of the flap. It descends to the shoulder on which it rests. The flap measures 9 inches in length by 8 inches in width. The patient declares that at birth the flap was about 2 inches in length and has gradually been extending in size. In every way the skin resembles redundant scalp tissue. The external surface is studded with hair follicles from which recently clipped hairs project. The inner and external surfaces may be readily rubbed over each other. The color of the skin of the flap, like that of the rest of the body, is rather deeply pigmented. The loose skin may be readily raised up and the ear projecting from the inner surface disclosed (Fig. 3).

Fig. 1.—Patient in Case 1. Note flap of skin and fibrous tumors on back.

Fig. 2.—Front view of patient in Fig. 1.

Fig. 3.—Flap of skin lifted to show ear.

CASE 2.—L. K., Chinese, aged 20, was admitted to the Canton Hospital in May, 1914, in order to care for a relative who was operated on for stone in the bladder. L. K. is not ill. When 5 years old he developed an abscess of the scalp behind and below the right ear and about 3 inches distant from it. The scar of this abscess is still visible. Ten years later he noted swelling of the scalp in this region. This has gradually increased so that at present the loose flap of skin extends 3 inches above the right ear, 2 inches below and is altogether 4 inches wide (Fig. 4). It is continuous with the tissues of the scalp, is slightly elastic and is not pendulous as in the former case. It is covered with hair. Patient feels no discomfort. The flap is said to be gradually increasing in size.

Fig. 4.—Patient in Case 2. Loose flap of skin behind right ear.

These two cases of dermatolysis, both of the scalp, represent the congenital and acquired form. In both cases the subject was below the average of intelligence. Neither was willing to have the redundant skin removed.

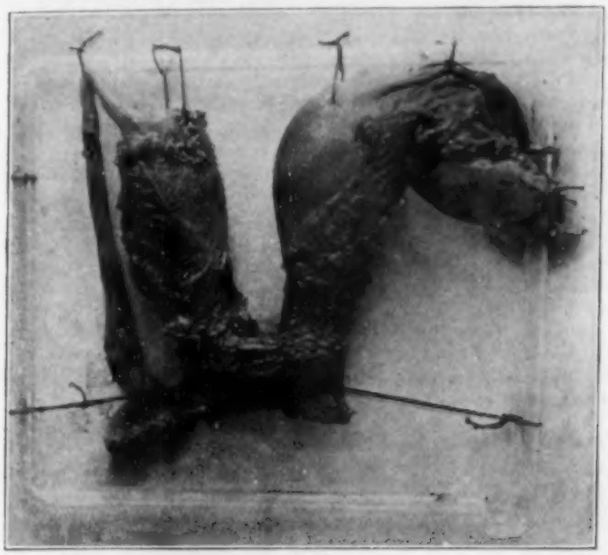
Canton Christian College.

Preventogram.—An hour's prevention may save a month of quarantine.—Pittsburgh *City's Health.*

A BICORNATE UTERUS WHICH CONTAINED THREE PREGNANCIES

CHARLES H. PARKES, M.D., CHICAGO

Mrs. H., aged 47, married twenty-five years; had three children and one miscarriage. At the first parturition forceps were used, and the perineum was extensively lacerated. Following the third childbirth prolapse of the uterus began, which increased slowly in degree, until, two years previous to operation, the cervix protruded from the vagina. On examination, a diagnosis of bicornate uterus was evident. The patient was a constant sufferer from the usual pains and from a profuse uterine discharge. Total hysterectomy was performed, followed by a complete recovery.



Bicornate uterus which contained three pregnancies.

25 East Washington Street.

THE THYROID GLAND IN PELLAGRA

CHARLES F. BEESON, M.D., ROSWELL, N. MEX.

Little attention has been given to the condition of the thyroid gland in pellagra. Some text-books do not mention it. According to Niles, in Lombardy, where there is much goiter and cretinism, physicians regard one disease as the cause of the other. He states that in the United States thyroid disease has not been noted in connection with pellagra to any extent. Out of 316 cases of pellagra investigated by a commission appointed by the Tennessee State Board of Health, this commission incidentally gave thyroid diseases as complicating in twenty-five instances, which was more than twice as many as any other complicating condition. The following case raises the question as to an etiologic relation between these two conditions:

The patient, a married woman of 45, presented herself April 13, 1913, and stated that she had always been in robust health until about one year previously. At this time she began having diarrhea with frequent passages accompanied often with colicky pains. This diarrhea has continued with more or less severity up to the present time. About five months ago she noticed that the back of both hands became rough, red and scaly, which she attributed to sunburn. She began having spells of aching, lost weight and became very nervous. She complained of dizziness and at times would walk like a drunken man. She also complained of indigestion accompanied by a sore mouth. A lump came into her throat and she said her neck-band became too tight. She said that her menstrual periods had been very irregular for several months.

Examination showed that the eyes were not noticeably prominent and von Graefe's sign was negative. The tongue protruded in the middle line, and was red and grooved transversely on the dorsum. It showed a bright red line along the under borders and was denuded of epithelium in spots. The tongue showed no tremor, nor was there any tremor of the fingers when extended. The sublingual glands were enlarged, and the ducts of Wharton were red and swollen. The thyroid gland was decidedly enlarged symmetrically. The backs of both hands were rough, scaly and dirty looking, with some redness along the knuckles. This eruption was exactly alike on both hands. Examination of the chest gave negative results. The abdomen was also negative except for some slight tenderness. Temperature, 98; pulse, 95; systolic blood-pressure, 120; hemoglobin, 90 per cent. The patellar reflexes were greatly exaggerated and there was slightly marked ataxia.

Patient was put to bed and fed liberally for about a month and was given iodin and arsenic. Her pulse dropped to normal in a few days and her nervousness gradually subsided. The eruption on her hands cleared up in about two weeks, only to flare up again in a few days, passing through a cycle of redness, roughness and desquamation lasting about three weeks. This eruption did not appear again. During this time the thyroid gland would apparently enlarge and recede. Her attacks of diarrhea gradually ceased and by fall all symptoms except some nervous exhaustion had disappeared. At the present time, Oct. 1, 1914, she is in good health and her thyroid is not noticeably enlarged.

What part did the thyroid play in this case? Was it a mild case of pellagra, simply complicated by an enlarged thyroid, or was the perverted action of the thyroid the cause of the pellagrous symptoms?

A TACK IN THE EPARTERIAL BRANCH OF THE RIGHT MAIN BRONCHUS

WILHELM LERCHE, M.D., ST. PAUL

A girl, aged 6 years, six days previous to consultation held an upholstering tack in her mouth, which accidentally found its way into the lung. She choked and coughed up some blood, which was followed by a somewhat persistent cough with expectoration.

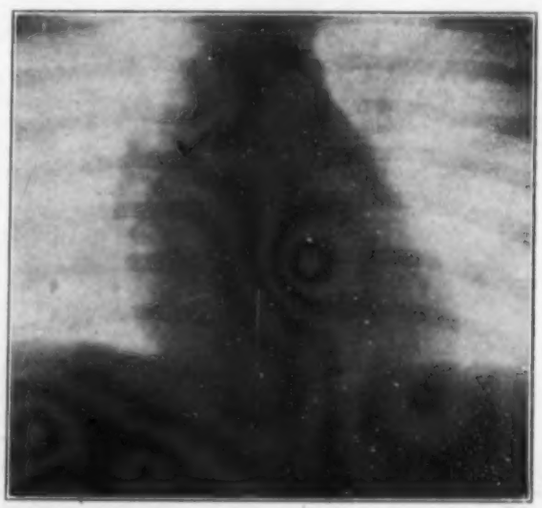


Fig. 1.—Tack in right main bronchus, three days after accident.

A roentgenogram (Fig. 1) had been taken three days after the accident, indicating the presence of the tack in the right main bronchus with the head downward.

There was absence of breath sounds in the upper part of the lung and râles below.

I expected to find the tack in the same position as seen in Figure 1, and did not have another roentgenogram taken, but immediately made a bronchoscopic examination, which revealed the following: About 5 mm. of the sharp end of the tack was seen in the right main bronchus, somewhat posteriorly to the right with the point downward and toward the midline, closely hugging the wall. It appeared as if it had been stuck through the wall from the outside, as there was no trace of the opening to the eparterial bronchus. The

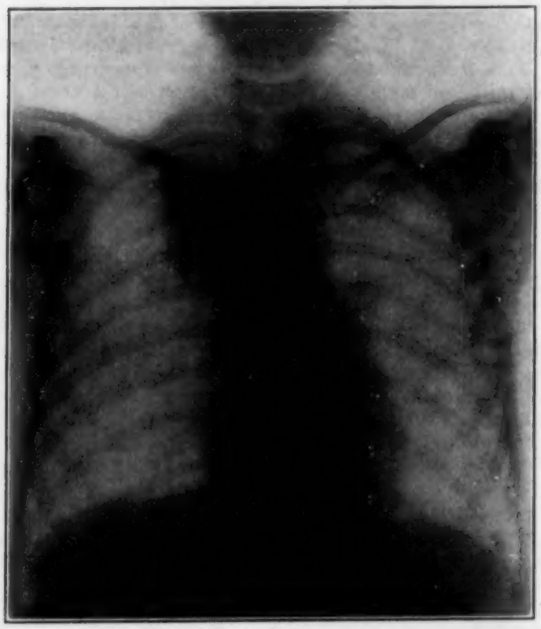


Fig. 2.—Tack in right eparterial bronchus, eight days after accident.

forceps was applied and many attempts were made to extract the tack, but the lower part of the lung was simply pulled up with it for a considerable distance before the forceps slipped off. Attempts were made to pull the tack downward but without success. The point could be brought up in the bronchoscopic tube but it required considerable force.

It was evident that the head was up in the side bronchus and that the swelling had completely occluded the lumen of the bronchus around the tack, on which epinephrin had no effect, so that forcible extraction could not be carried out without much destruction. After this attempt there was increase in the cough, pronounced hoarseness, and a temperature varying between 100 and 103.8.

Roentgenoscopy now showed the tack with the head up (Fig. 2), as seen through the bronchoscope.

I decided to incise the neck of the eparterial bronchus to liberate the tack, and to this end had the curved blade (A *b*, Fig. 3) made, which is worked by a lever (A *c*, Fig. 3).

Three days after the first attempt the incision into the neck of the bronchus was made through a 5-mm. bronchoscope. A gush of dark blood poured out, but ceased as soon as the bronchoscope was withdrawn.

The following day there was a marked change in the patient's condition. The temperature was normal, the hoarseness had disappeared, the cough had lessened and she felt very well although the tack was still in the bronchus.

As extraction of the tack was not attempted, and, I think, should not have been attempted in the same sitting, because it might have greatly increased the hemorrhage, I could not be positive that the incision had been sufficient. For the third sitting, therefore, two other methods of attack were prepared. Two long and very slender cannulas were made to fit on ordinary nasal snare handles. The right side of the distal end of one cannula was filed off slanting so that when the tack was snared it would be held as near parallel to the cannula as possible (B *a*, Fig. 3). With another snare one or more wires were to be slipped over the first one and on the tack (B *b-c*, Fig. 3). While one assistant would push downward the point of the tack securely held by the snare, another assistant should pull up on the loose wire, *b-c*. The head of the tack would thus be brought close to the bronchoscopic tube and as near the neck of the bronchus as possible, and with a short straight blade which was made for the purpose or with a cautery, the intervening part could be severed. This could also be done by using the wire as a saw or by threading it on the second snare and snaring it.

In Figure 3 C another method is shown in which by the aid of the snare, *b*, the point of the tack is pulled up into the bronchoscopic tube and with the cautery or knife the neck is to be incised.

Seven days after the incision was made a roentgenogram showed the tack in the same position as in Figure 2. Bronchoscopy likewise demonstrated the tack in the same place and the incision could be seen. When the forceps was applied, however, the tack was found to be entirely loose, and when it was lifted out it fell headforemost into the lower hyparterial bronchus, whence it was quickly picked up and removed.

The tack measured 18 mm. in length and the head 8 mm. in width (D, Fig. 3). The lung cleared rapidly and the patient left the hospital a few days later.

In the first roentgenogram (Fig. 1) the tack was apparently in the right main bronchus, point up, and with the head probably resting in the opening of the eparterial bronchus. By suction it had been advanced up into the latter (Fig. 2).

I have been unable to find any measurements of the eparterial bronchi in children, but according to Engel (*Arch. f. Kinderheilk.*, 1913, p. 60) the diameter of the right main bronchus in a child of 5 years is: sagittal 8.4 mm., frontal 6.9 mm.; in a child of 7 years is: sagittal 9 mm., frontal 9.3 mm.

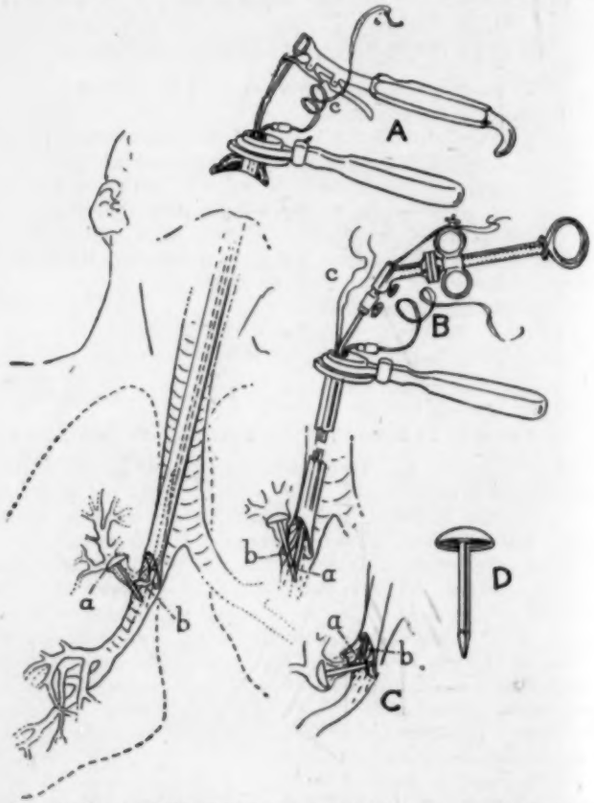


Fig. 3.—A: *a*, upholstering tack; *b*, curved blade; *c*, lever for working the blade. B: *a*, distal end of snare holding tack downward; *b*, *c*, wire for pulling head of tack upward. C: *a*, cautery; *b*, snare. D: Tack (actual size).

The length of the eparterial bronchus: at the age of 5 years 7 mm.; at the age of 7 years, 10 mm.

According to Abey, the diameter of the main right bronchus in men is: from 15 to 21 mm.; in women, from 13.5 to 16

mm. The diameter of the eparterial bronchus in men is from 7 to 10 mm.; in women, from 8.5 to 9 mm.

According to this, roughly estimated, the diameter of the eparterial bronchus would be about half of that of the main bronchus, and the eparterial bronchus in a child of 6 years would very likely be less than 5 mm. in diameter.

Allowing for the individual variation in size of the bronchi, it would seem almost incredible that so large a foreign body could work its way into a side bronchus of a child of that age, and it can readily be understood how firmly it was fixed in place.

Lowry Building.

A CASE OF CARDIOSPASM, WITH IMPROVEMENT IN METHOD OF DILATATION

T. ARTHUR JOHNSON, S.B., M.D., DEKALB, ILL.

History.—Dec. 12, 1912, an 18-year-old Finnish girl came to me complaining of being unable to keep anything in her stomach. The interpreter stated that she had not retained any liquid or solid food for over eight days. When she attempted to swallow anything it was immediately returned. This was accompanied by a burning sensation at the pit of the stomach, but the returned food did not taste sour. She felt hungry and dry, and had lost 10 pounds in weight. She had had similar, slight disturbances at intervals for about a year and at these times was relieved by drugs. The previous history is negative with the exceptions that she had an attack of acute articular rheumatism about a year before and she has always been "nervous."

Examination shows a fairly well-developed, neurotic appearing girl with very prominent eyes. The faucial and corneal reflexes are practically absent. The thyroid is slightly enlarged, but the pulse-rate is normal. The left border of cardiac dulness extends one finger's breadth to the left of the midclavicular line, the pulmonic second sound is accentuated and a loud systolic murmur is transmitted to the left axilla. There is slight tenderness on pressure over the epigastrium. The hemoglobin is 70 per cent., and the reds and whites are normal in number and type.

Treatment.—A stomach-tube reinforced with a piano wire was passed without resistance, and the patient was fed by gavage and placed on bromids and belladonna. In about one week she could swallow without any difficulty. Four weeks later she returned with the same symptoms. I passed a series of olive esophageal dilators into her stomach very easily, the largest one passing as easily as the smallest. At no time could I demonstrate but a small quantity of retained pabulum in the esophagus. At that time I did not have easy access to a Roentgen-ray apparatus.

Jan. 4, 1913, I dilated the cardiac sphincter with a Sippy rubber bag dilator up to 150 mm. of mercury. The patient was free from her trouble for two weeks. At the return of the cardiospasm I again dilated the sphincter to 300 mm. of mercury without causing any pain. Since then there has been no recurrence of her cardiospasm.

IMPROVEMENT IN METHOD OF DILATATION

In connection with the report of this case I wish to present a slight improvement in the method of forcible dilatation of the cardiac sphincter by means of the rubber balloon dilator. The apparatus used is a combination of the ideas of the pioneers in this work, with the innovation consisting in generating the dilating pressure by compressing the air-chamber of a tightly stoppered bottle—partly filled with water—by means of the hand bulb of a mercury manometer.

With the apparatus arranged as in the diagram, the rapidity of increase and the amount of pressure are at all times under complete control of the operator. The pressure generator can be easily constructed and is extremely portable. The small capillary tube *d* inserted into the lumen of the rubber tube is a further safeguard against too rapid dilatation, and the emergency valve *e* provides for instant release of the water pressure in case that becomes necessary. This provides a more simple, easy and safer method of obtaining the pressure than any that has come within my knowledge.

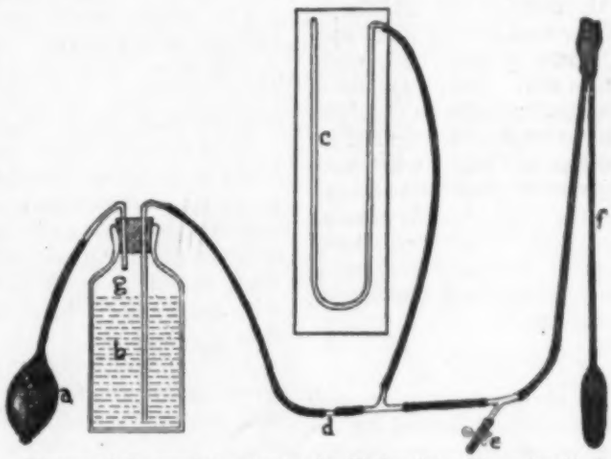


Diagram of the complete apparatus for dilating the cardia: *a*, hand-bulb of mercury manometer; *b*, water in pressure bottle; *c*, mercury manometer; *d*, glass capillary tube; *e*, emergency valve; *f*, Sippy cardiospasm dilator; *g*, compression chamber above water.

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 2043)

XI

AIR CONTAMINATION

Normally the alveolar air of the lungs, that is, the air retained in the lungs for oxygen and carbon dioxid (CO_2) exchange, contains about 5 per cent. of the latter. If the amount of this gas in the retained air is diminished below 5 per cent., breathing is slowed until the carbon dioxid has accumulated and this percentage is again reached. If the percentage of the carbon dioxid is increased above 5 per cent. the respiration becomes more rapid, until the amount again becomes normal.

The arterial blood leaves the lungs with the same percentage of carbon dioxid in it as is in the alveolar air, and this carbon dioxid content of the blood stimulates or depresses the respiratory center, depending on the amount of the carbon dioxid in the blood. Therefore, this gas is a regulator of the respiration. Exercise increases the carbon dioxid, and hence the respiration is increased.

The alveolar air contains about 16 per cent. of oxygen, and the red blood-corpuscles in the blood of the left heart normally contain all they will absorb. Crowder[1] says that if the oxygen is diminished in the lungs to 12 per cent. or less the corpuscles will still take up their full quota. He also states that neither a surplus nor a deficiency of oxygen in the air supplied the lungs, unless the difference is extreme, will cause a change in the oxygen content of the red corpuscles. Actual need of oxygen will not increase respiration if at the same time the carbon dioxid in the alveolar air is reduced; that is, the carbon dioxid must equal 5 per cent. for normal respiration to occur. He emphasizes the fact that "with each breath we take back into the lungs the air contained in the nose and larger bronchi

1. Crowder, T. R.: On the Reinspiration of Expired Air, Arch. Int. Med., October, 1913, p. 420.

— the 'dead-space' air. This 'dead-space' air constitutes about one-third of the whole volume of quiet inspiration and not less than one-tenth of deep breathing. To all intents and purposes it is expired air which is constantly reinspired."

Hence the degree of contamination of the air in a room with carbon dioxid does not affect the individual, but the amount of water vapor does. It is not rebreathing the same old air, either of our own breath or of others, that mainly affects us, but it is the water vapor which prevents the air exchange on the surface of our bodies, and especially stagnant, overmoist air, that depresses and debilitates us.

Crowder has fully shown that we rebreathe our own inspired air over and over again. Hence it is not pure air we breathe. This is true when at rest, true when in bed, especially true in some confined sleeping positions. It is true with open windows, and in most tents and on verandas, and even in actual open air, unless the wind blows freely across our faces. In the latter case the depth of the breathing is reduced, and we might reexchange the air of the upper air passages more or less all night even while sleeping with the face exposed to the wind.

None of this militates against the value of clean, fresh air as a stimulant to the metabolism, and therefore to health, but it does show that the chemical constituency of the air is not primarily important, while the temperature and moisture are. Dry, cool air is bracing; dry warm air, if in motion, may be comfortable and not depressing; but warm, moist stagnant air is very depressing to metabolism, and hence when such a condition occurs in houses, stores, factories or assemblage halls harm is done to the individual in amount depending on the hours he spends in such an atmosphere. Overheating of houses and schoolrooms is harmful; too great humidity is also bad, although a too dry atmosphere is not desirable.

DISSEMINATION OF CONTAGION

The wonderful progress in medicine is in no way shown more than by the knowledge acquired by the bacteriologists and by the wonderful experimental work of the laboratory workers. The various funds devoted to this work are paying large dividends in preventive medicine. Experimentation with the higher animals which more closely resemble human beings has disclosed many truths hitherto unknown regarding pathology, bacteriology and contagious diseases.

It was formerly believed that infectious material, which was not then known to consist of micro-organisms, was carried through the air for considerable distances. With small-pox it was believed that infection could travel several thousand feet. It has now been shown that this disease cannot pass through the air more than a few feet.[2]

Infectious material from patients suffering from disease of any kind may adhere to clothing, furniture, books and similar articles and may be carried from one person to another and be a means of infecting other individuals, but this method of transmission is at the present time believed to be uncommon. Ordinarily a contagious disease is acquired by direct contact and largely by the patient breathing in germs or particles of infected matter which have been expelled from the person affected with the disease by sneezing, coughing, or even loud talking.

A frequent means of transmitting disease from one person to another is by so-called "missed cases," that is, patients who have the disease in such a mild form that it is not recognized. This is especially likely to happen with diphtheria and scarlet fever. Another frequent source of acquiring disease is by means of so-called "carriers," that is, persons who have in their throats or other parts of the body the micro-organism of a disease, but who do not know they have the disease and are not made ill by the germs.

Some pathogenic bacteria die so quickly after leaving the body that infection from dust or air contaminated by them is practically impossible. Such are notably the germs of influenza, cerebrospinal fever and gonorrhea. In these diseases direct contact is the only probable method of transmission. This does not detract from the fact that not infrequently contagion is conveyed to well persons who come in contact with mucus or mucopus containing living germs.

Tubercle, diphtheria and typhoid bacilli, on the other hand, may survive drying and be wafted in the dust, but infection by means of such dust is probably very rare. Droplet contamination of air and of articles immediately about a person infected with pulmonary tuberculosis or diphtheria frequently occurs.

The air of sewers has been shown to contain few pathogenic organisms, except in very rare instances. A few colon bacilli have been found, but then in such small numbers that the danger of infection from inhaling such gas is practically nil.

Even if the dust of a room is shown to contain viable tubercle or typhoid bacilli, the number of such in the upper air of the room would ordinarily be so few that infection in this way is practically impossible. Young children playing about the floor of such a room, however, would be in danger of infection, and infection with tuberculosis in children is doubtless frequently thus acquired.

Investigation seems to show that the pathogenic bowel germs are rarely air-borne, and that the infection cannot be thus acquired. Such germs are those of typhoid fever, paratyphoid fever, dysentery, diarrhea and cholera. Typhus fever is not air-borne, but is due to the bites of the infected body- or head-louse. Bubonic plague is transmitted by the bite of an infected flea.

The rapidly spreading influenza (the grip) seemed surely to be disseminated by dust or to be air-borne, but it seems that, like tonsillitis, diphtheria and ordinary colds, it is contracted by contact either with the infected person or with contaminated substances, as clothing, handkerchiefs, furniture, eating and drinking utensils, etc. The same is true of eye inflammations and contagious skin diseases. This has long been known to be true of syphilis and gonorrhea.

Much more difficult for medical men, to say nothing of laymen, to believe is what must now be considered a fact, namely, that the scales of desquamating scarlet fever are not contagious and do not carry the contagium; scarlet fever is spread only by contact with the infected person or with articles infected by the patient having the disease.

Measles, apparently the most readily spread of any contagion, seems to be transferred only by contact. It was suspected that this disease was transmitted by the air because a child could disseminate it so many days before he was actually sick and confined to the house or bed. Whooping-cough, "German measles" and

2. Kiefer, G. L.: The Control of Contagious Diseases in a Municipality, The Journal A. M. A., Dec. 7, 1912, p. 2022.

chicken-pox are all probably spread by contact and not by diffusion through the air. Small-pox, as stated above, is spread only by contact.

It has been shown in hospitals that if the nurses are careful not to allow contact with other patients, small-pox, measles and scarlet fever, the most contagious of all diseases, may be cared for in adjacent wards, and even, in careful experiments, in adjacent beds, without infection of others. Of course, such close association of a contagious disease with those who have not the disease is absurd on account of the failure, in the routine work, of nurses and attendants to carry out strict measures to prevent contact or the transmission of contaminated articles from one to another. Therefore, there should be separate wards, if not separate buildings, for the different contagious diseases; but the experimentation mentioned above shows conclusively that these diseases are spread by contact only.

It is now recognized in hospital operating rooms that droplet infection is a danger, if all other sources of infecting the wound are excluded, and hence surgeons and their assistants wear mouth and nose covers lest they cough, sneeze or speak energetically, and thus spray the region of the wound.

It is hardly probable that pneumonia and acute rheumatism can be spread in any other way than by contact. It is possible that these more or less constantly present germs may require only a certain condition of the mouth, upper air passages and system to infect us. Cerebrospinal fever and infantile paralysis doubtless require contact, and are probably not air-borne. It should also ever be remembered, in considering the possibility of an air- or dust-borne infection, that it requires a large number of most germs to cause an infection; a few would ordinarily be killed off before infection could occur.

FLIES

The ubiquitous fly is a menace and a distinct and positive source of danger. He can disseminate typhoid, diarrhea and dysenteric germs, and probably also the germs of tuberculosis, diphtheria, scarlet fever, cerebrospinal meningitis, small-pox, carbuncle, tetanus, rabies, anterior poliomyelitis, and even germs from granular lids. Also these insects can harbor, for long periods, in their bodies the various pathogenic germs. Frozen flies from a hospital, after being externally cleansed and dried and then powdered and cultured, have been shown to harbor staphylococci, streptococci, colon bacilli and about fifty other kinds of bacteria. Experiments have shown that when a fly is fed on such bacteria as the typhoid bacilius and streptococci, and later cultures taken from its dead body, these cultures will show pure growths of the bacteria on which the fly was fed.[3] Consequently, not even a dead fly is a good one, and all dead flies should be cremated if not washed down the sewers.

House and stable flies are not supposed to stray ordinarily more than 500 yards from their breeding-places, but winds may carry them farther. It should be regarded as an axiom that all breeding-places (manure heaps and filth) should be abolished, or receive such treatment as to prevent the growth of the flies, and in this object there should be cooperation of families, tenement owners, towns and cities.[4]

Infected flies may be readily carried on horses or in vehicles of all kinds for long distances, and may be the source of infection of patients far removed from the contagion, and the transportation of germs by flies doubtless accounts for many new foci of disease.

MALARIAL FEVERS

Thousands of lives are lost in the United States from malarial fever, and many thousands of persons are incapacitated for days and weeks by such fevers.

Although the subject of mosquitoes has already been touched on, it may be again emphasized that the public should know, and children in schools should be taught, that the anopheles mosquito, which inhabits swampy places and does not ordinarily fly far, and only comes out of its lair and bites at night, is the only source, as far as we know, of what is termed malarial fever.

This mosquito is innocent of harm until it has sucked blood infected with malarial plasmodia, capable of development, from a human being. When these germs develop into spores and are excreted by the mosquito's salivary glands she is able to infect an innocent human being. The female mosquito will harbor these germs until she dies, unless she is subjected to a temperature below 60 F. Hence in regions where the temperature falls below this point for a shorter or longer period, these infected mosquitoes are no longer able to infect human beings. The source, therefore, of the next season's infection is in human "carriers" of malarial germs, in most parts of our continent, except where it is always warm.

The question, then, is, Can we eradicate malarial plasmodia from human beings? Probably yes is a correct answer if we follow what has been scientifically ascertained, namely, that quinin in proper dosage will stop acute malarial fever in two or three days. But as this quinin destroys only the asexual forms, that is, the form that causes paroxysms, while the sexual or reproductive forms may live and redevelop for infection of the mosquito, or to cause a reinfection and symptoms in the patient, the drug should be again given for two days of each week for a period of eight weeks to be sure of complete elimination of the germ; or it may be as well to give the patient a daily dose for eight weeks to eradicate the germs and their spores completely and to prevent the infection of future mosquitoes. If every physician carried out this plan, and every patient allowed it, malarial fever would become unusual.

It may again be mentioned that kerosene or crude petroleum sprayed on stagnant water or wet places will prevent the development of mosquitoes. One ounce of kerosene will cover 15 square feet of water surface. Stagnant water should not be allowed.

(To be continued)

3. Berezoff: Russk. Vrach, June 29, 1913.
4. For methods of prevention of the growth of flies see Department of Agriculture Bulletin 118, issued July 14, 1914.

Birth- and Death-Rates.—Records of the Department of Health show that for the past six years the birth-rate of New York City has been steadily decreasing, and that last year the lowest point for the six years was reached. The death-rate had likewise decreased steadily, so that to-day the births exceed the deaths by eleven per 1,000. This city has the second lowest mortality figures among the cities of the world which have a population of 2,000,000 or more. The birth-rate here is 25.15 per 1,000, while in London it is 24.93 and in Berlin 19.61. The death-rate exceeds only that of Berlin, which is 13.48 per 1,000. The deaths from pulmonary tuberculosis number 1.601 per 1,000, while in Paris they are 3.178. Paris has also the highest mortality from typhoid fever.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter

SATURDAY, DECEMBER 12, 1914

THE PROPER DOSAGE OF DIPHTHERIA ANTITOXIN

At the last session of the American Medical Association, Dr. W. H. Park[1] read a paper in which he reported his experience with Schick's[2] test. This reaction indicates whether or not persons who have been exposed to diphtheria are susceptible to the disease; that is, whether or not prophylactic injection of antitoxin is needed. In the discussion, it was urged that the matter be brought to the attention of physicians as soon as possible, in order to avoid the expense and inconvenience of unnecessary prophylactic inoculations.

Some later studies of Schick[3] which bear on the dosage of diphtheria antitoxin in the treatment of diphtheria patients have recently been reported from von Pirquet's clinic in Vienna. They seem to be of such practical importance for the every-day work of general practitioners as to make it desirable that every physician should become acquainted with them. While all special workers will want to read the full details of the experimental work which has led to Schick's conclusions, in general, it will be sufficient to know the results and that the methods by which they have been reached indicate that we have good reason to believe in their reliability. It is interesting to see how closely the results obtained by Schick correspond to those which followed the careful studies of Park on toxin and antitoxin titration in diphtheria.

Schick and his associates have made use of the now well-known fact that intracutaneous test injections of minimal amounts of diphtheria toxin will cause redness and swelling at the site of injection. In diphtheria patients, they made several such intracutaneous test injections at three-hour intervals for some little time preceding the moment of injecting the curative antitoxin. After injecting antitoxin, they subsequently made intracutaneous test injections of the same minimal amounts of diphtheria toxin at twenty-four hour intervals. The curative dose of antitoxin was given intramuscularly, and varied in size in different patients. The effect of the antitoxic serum is precisely recognizable by the decrease in the diameter of the reactions following the intracutaneous test injections of toxin.

Careful observation showed that the main effect of the antitoxin is one of immunization — that is, a suitable dose of antitoxin renders the individual immune to a dose of toxin administered later. On the other hand, even a large dose of antitoxin has but slight effect on the action of toxin injected previously. To be sure, there is some effect on toxin introduced from three to six hours before the injection of antitoxin, and in exceptional cases an enfeeblement of the effect of the toxin introduced nine hours before the antitoxin was given; in other words, the main effect of antitoxin injection is to protect against toxin arriving after the antitoxin has been introduced.

The experiments have shown that it is necessary to calculate the dose of antitoxin according to the body weight of the patient. When amounts of antitoxin corresponding to 50 units per kilogram[4] of body weight are given, the protective effect against toxin injected simultaneously, and on that injected twenty-four hours later, is demonstrable, but is not satisfactory. On increasing the dose of antitoxin to 100 units per kilogram, the immunizing effect is extraordinarily better, as, in the majority of cases, toxin injected twenty-four hours later produces no effect whatever. In addition, the effects on toxin injected simultaneously is much better than when only 50 units per kilogram are given. On increasing the dose of antitoxin to 250 or to 500 units per kilogram, the influence on simultaneously injected toxin is somewhat improved, but there is no increase whatever in the immunizing effect, for, as has been said, 100 units per kilogram exert a maximal effect on any toxin subsequently introduced.

Further observations showed that a maximal antitoxin effect is obtained with a dosage of 500 units per kilogram; larger doses have no greater influence, either on simultaneously injected toxin or on toxin injected twenty-four hours afterward. The retroactive effect on toxin injected three hours earlier is very slight even when 500 units per kilogram are given, and such large doses have only a slightly better effect than doses of 100 units per kilogram.

In the treatment of human diphtheria, therefore, Schick and his colleagues recommend (1) that the injection be given at the earliest possible moment; (2) that it be given intramuscularly; (3) that in all mild and medium cases of diphtheria (and these make up about 90 per cent. of all cases) a single dose of 100 units of antitoxin per kilogram suffices, and (4) that in the severest cases, 500 units per kilogram may be injected. In other words, in a child weighing 20 kg.

1. Park, William H.; Zingher, A., and Serota, M. H.: Active Immunization in Diphtheria and Treatment by Toxin-Antitoxin, The Journal A. M. A., Sept. 5, 1914, p. 859.

2. Schick, B.; Kassowitz, K., and Busacchi, P.: Experimentelle Diphtherie Serum-Therapie beim Menschen, Ztschr. f. d. ges. exper. Med., 1914, iv, 83.

3. An Early Test for Susceptibility to Diphtheria, Editorial, The Journal A. M. A., April 11, 1914, p. 1176.

4. A kilogram is equal approximately to 2⅕ pounds avoirdupois.

(or 44 pounds), 2,000 units will, in 90 per cent. of the cases, suffice, while in 10 per cent. of the cases of the most severe type a dosage of 10,000 units may be given. In an adult weighing 60 kg. (or 132 pounds) a dose of 6,000 units will suffice in all the ordinary cases, whereas in the severest cases a single dose of 30,000 units may be given.

One of the most important of Schick's observations is that repeated injections of the serum are superfluous and not warranted. Even in the severest cases, he asserts that if a dose of 500 units per kilogram be injected immediately the greatest good possible will be obtained. Subsequent injections of antitoxin after six, twelve or twenty-four hours are, he maintains, unnecessary, for any further effect of toxin is prevented by a single dose of the size mentioned. If the diphtheria patient dies, it is because the toxin elaborated by the organisms in his body has had time to act before the antitoxin was injected, and cannot by any means as yet known to us be afterward inactivated. The only circumstance in which a second injection is of value is when the first injection given has been smaller in dose than the optimal doses recommended; then one may give a single dose of 500 units per kilogram.

In exposed persons requiring a prophylactic immunizing dose, a single injection of 50 units per kilogram is sufficient.

If the conclusions drawn by Schick and his colleagues from these interesting studies be correct, it is obvious that the practitioner will, from now on, be provided with a precise method of treating diphtheria patients hitherto much desired. It would appear that the enormous doses sometimes given of 100,000 units, or more, of antitoxin are wholly unnecessary, involving large expense and much inconvenience to the patient, especially where repeated injections have been given. One would, of course, not shrink from the expense or from the inconvenience, could a single life be saved thereby; but Schick's studies seem to indicate that in most cases 100 units per kilogram, and in a few severest cases 500 units per kilogram, given in a single dose, yield the maximal protective effect at present obtainable.

THE NATURE OF THE NERVE IMPULSE

Many views have been advanced with regard to the nature of the conduction processes in nerves. Naturally so fundamental a phenomenon as the passage of an impulse along a nerve cannot fail to awaken speculation on the part of anyone who is accustomed to think critically about physiologic processes. With the accumulation of new facts bearing on the question old theories have been abandoned and new hypotheses in turn advanced. The mere review of some of these is of interest as an illustration of the way in which science sometimes progresses. Thus, it has been suggested that the whole nerve moved like a bell rope; that the nerve was a tube, and that a biting acid flowed along it; that the nerve contained an elastic fluid which was thrown into oscillations; that it conducted an electric current like a wire; that it was composed of definitely arranged electromotor molecules which exerted an electrodynamic effect on each other; that it was made up of chemical particles which, like the particles of powder in a fuse, underwent an explosive change, each in turn exciting its neighbor; that the irritant caused a chemical change, which produced such an alteration of the electrical condition as to excite the neighboring parts to chemical change and thereby to electrical change, and so alternating chemical and electrical changes progressed along the fiber in the form of a wave; finally, that the molecules of the nerve substance underwent a form of physical vibration analogous to that assumed for light.[1]

Even at present, students of the subject are still divided into two camps, one of which inclines to a physical theory of nerve conduction, the other to a metabolic or chemical theory. We know, at any rate, that there is no mechanical change in the nerve. If the nerve serves merely as a conducting medium in a purely physical sense, one would not expect much, if any, expenditure of energy in the process. The lack of any heat production in stimulated nerves[2] appears like decided evidence against the idea that irritability is primarily a chemical phenomenon. Heat changes are characteristic of metabolism. On the other hand, convincing evidence has gradually accumulated tending to show certain small chemical changes incident to the excitatory processes in nerves from the fact that, in the complete absence of oxygen, the nerve fibers lose their irritability, and that the latter may be restored by readmission of oxygen to the nerve.

By the use of an ingeniously contrived apparatus, the biometer, in which amounts of carbon dioxid as small as 0.000,000,1 gm. can be measured, Tashiro[3] has demonstrated in the laboratories of the University of Chicago not only that all living nerves give off carbon dioxid—a sign of chemical change—but also that their metabolism increases on stimulation. These facts have now been supplemented by Tashiro and Adams[4] in harmony with the argument that the primary basis of protoplasmic irritability must be a chemical one. Their new evidence shows that, in the absence of oxygen, nerves have a far lower output of carbon dioxid than in air, and that stimuli which more than double the output in air fail to give any increase in an atmosphere of hydrogen, that is, an oxygen-free medium. Oxygen is therefore primarily concerned with the metabolism of nerves.

1. Lombard, W. P.: General Physiology of Muscle and Nerve, American Text-Book of Physiology, edited by Howell, 1896, p. 97.
2. Hill, A. V.: Jour. Physiol., 1912, xliii, 433.
3. Tashiro, S.: Am. Jour. Physiol., 1913, xxxii, 107; ibid., 1914, xxxiii, 38.
4. Tashiro, S., and Adams, H. S.: Carbon Dioxide Production from the Nerve Fiber in a Hydrogen Atmosphere, Am. Jour. Physiol., 1914, xxxiv. 405.

The foregoing facts are no proof that oxidative change or metabolism in the nerve is the forerunner or cause of its conductivity. They might, of course, express the effect of the change in the state of excitability. Whatever the future may finally say to the question whether nerve fibers can function independently of chemical changes, it now seems certain that active metabolism in the nerve fiber is a fact; and, quoting the Chicago investigators, the incorrect assumption of an absence of metabolism can no longer be used by the physical school to support their argument.

ACETYLCHOLIN AND ERGOT PREPARATIONS

Some time ago, in a discussion of the active principles of ergot,[1] attention was called to the discovery by the pharmacologist Dale and the chemist Ewins of acetylcholin in certain preparations of ergot. The physiologic action of this base had already been investigated by Hunt and Taveau,[2] who pronounced it to be far the most powerful circulatory depressant known. Its occurrence, therefore, in preparations of ergot intended for medicinal use naturally aroused considerable interest, for the question arose whether it might not add to the dangers of this drug. Dale[3] now reports an extensive study of this and of some other derivatives of cholin. He confirms the observations of Hunt and Taveau as to the extraordinary activity of this substance; indeed, he finds it even more active than did these authors, for whereas the latter found 0.000,005 mg. injected intravenously into a rabbit to cause a fall of blood-pressure, Dale reports such a result from "the almost incredibly minute amount of 0.000,001 mg. (the one-millionth part of a milligram)."

Fortunately this extraordinarily active substance is only exceptionally found in medicinal preparations of ergot, and then as a rule only in minute amounts; still Dale found as much as 0.2 mg. per cubic centimeter in one such preparation. This amount injected intravenously into a human being would undoubtedly cause most alarming symptoms; it would be harmless by the mouth and probably if given subcutaneously, for acetylcholin is rapidly destroyed in the tissues. In these days when the administration of drugs intravenously is increasing and when manufacturers are placing so many new preparations for such use on the market it would be well for a physician considering this use of an ergot preparation to bear in mind the possible occurrence in it of acetylcholin. There are no chemical tests by which this substance, even when present in dangerous amounts, can be recognized, but there are physiologic tests by which the most minute amounts may be detected. Any preparation of ergot intended for intravenous use should be subjected to these tests; it might be well also to test those prepared for subcutaneous use, for Hunt and Taveau found doses of 0.1 mg. injected subcutaneously into cats to cause a pronounced fall of blood-pressure.

Aside from this practical aspect of the occurrence of acetylcholin in ergot, the substance itself is of much scientific interest. It is easily prepared from cholin and certain simple derivatives of acetic acid. Cholin is probably a constituent of all living cells; it has been found in the blood and in all organs investigated (beginning with its discovery in the adrenal glands by Hunt in 1902). The animal body always has derivatives of acetic acid available for synthetic purposes; when benzoic acid, for example, is taken it is quickly excreted as hippuric acid, that is, as a compound of benzoic and amino-acetic acids. May not conditions arise in the body under which cholin may unite with acetic acid to form acetylcholin just as this substance is formed by the fungus of ergot? Or is it not possible that the body itself may form such a compound for some of its own purposes just as it forms epinephrin? Some of these questions were raised by Hunt several years ago and are again brought up by Dale. As Dale states, we have in epinephrin a substance having a special affinity for one great division (the true sympathetic) of the autonomic nervous system; it is formed in the body and utilized by it for the purpose of stimulating the endings of the nerves of this system. Acetylcholin, on the other hand, has little or no effect on the true sympathetic nerves, but has a specific action on the other great division of the autonomic nervous system—the cranial and sacral (or parasympathetic) division, which supplies the sphincter of the iris, the inhibitory nerves to the heart, the motor and secretory nerves to the alimentary tract, etc. Epinephrin is a very unstable substance; it is secreted, under certain conditions, by the adrenal glands, fulfils its physiologic functions and is then destroyed. Acetylcholin is a more active substance, but in a different way, than epinephrin; it is even more readily destroyed. May it not function as a hormone in the same, but in a complementary or antagonistic way, as does epinephrin? Its instability may have prevented its detection just as the secretion of epinephrin was long overlooked. As Dale says, these questions are of great interest, but for the discussion of which little evidence is at present available; there is no known depot in the body of cholin derivatives as there is in the case of epinephrin, or indeed any evidence that a substance resembling acetylcholin exists in the body at all. It is true, as Dale recalls, that Hunt[4] found evidence of the existence of a substance in the suprarenal glands which was not

1. Active Principles of Ergot, editorial, THE JOURNAL A. M. A., June 20, 1914, p. 1969.
2. Hunt and Taveau: Hyg. Lab. Bull. 73, U. S. P. H. S., 1911; Brit. Med. Jour., 1906, ii, 1788.
3. Dale: Jour. Pharmacol. and Exper. Therap., 1914, vi, 147.
4. Hunt: Am. Jour. Physiol., 1899, iii, 18; 1901, v, 11; Brit. Med. Jour., 1906, ii, 1788.

cholin itself, but which readily yielded cholin in the process of extraction, and which was from fifty to a hundred times as active as cholin; the nature of this substance has not, however, been determined.

This work illustrates some of the lines of work in modern pharmacology; the results are of immediate practical as well as scientific interest. The best results are obtained when a pharmacologist can cooperate with a skilled organic chemist. It is unfortunate that there are not more laboratories in this country where such cooperation is possible.

LOSS OF LIFE BY EXPLOSIONS IN THE MILLING INDUSTRY

Statistics sometimes surpass all forms of direct argument in emphasizing the need of reforms relating to the public health. In this belief we cite from a preliminary report published by the Millers' Committee of Buffalo[1] the fact that in thirteen investigated explosions which have occurred in grain mills and similar industrial plants in very recent years in this country, at least seventy-eight men were killed and 119 injured. Incidentally, the total damage to property exceeded $2,000,000. In four explosions in Europe since 1911 — two in dextrin works, one in a provender mill grinding peas, beans and wheat, and one in a linseed mill — the human loss is expressed by forty-seven killed and 119 injured.

Surely some consideration of methods pertaining to the prevention of such explosions is called for. It has already developed from Dr. Brown's laboratory study of the problem[1] that most, if not all, grain dusts are more inflammable than standard coal dust (which has long been recognized as a source of danger in the industries). Grain dusts in most cases develop higher pressures on explosion, especially at the lower temperatures. The preliminary observations seem to indicate that the dusts from oats and yellow corn are more inflammable than those from wheat and other grain.

The investigations of the Millers' Committee indicate a difference in the inflammability of dried and undried dusts. In nearly every case the pressure developed on explosion was increased appreciably after drying. The result of a decrease in the humidity of the air is thus suggested.

Various causes have been assigned to many of the explosions in milling plants in this country and abroad, among them the use of open lights, or naked flames, such as lamps, torches, gas jets, lanterns, candles, matches, etc.; property fires; introduction of foreign material in grinding machines; electric sparks from motors, fuses, switches and lighting systems, and static electricity produced by friction of pulleys and belts, grinding machines, etc.

The field-engineering inquiries of the Buffalo investigators indicate that a large number of the recent explosions and fires have been caused by the introduction of foreign material into grinding machines. It would appear that a possible means of prevention would be to devise some system by which the foreign material might be removed before it reached the mill. For the present, it is recommended in a practical way that prevention of explosions may be assisted by complete electric-lighting systems, the use of portable electric lamps instead of lanterns or naked lights, the enclosing of the electric-light bulbs in strong wire guards or protectors, and the possible use of vapor-proof globes, and the locating of all fuses, switches, starting-boxes, motors, etc., at points where no dust is present. It is also advised to have the receiving bins from the grinding machines as small as practicable with the operations, as increased size gives increased space for dust clouds and, therefore, opportunity for a more violent and destructive explosion.

THE MOVEMENTS OF THE VILLI OF THE SMALL INTESTINE

In addition to their epithelial covering and their vascular and lymphatic arrangements, the villi of the small intestine contain masses of unstriated muscle fibers. These pass up from the muscularis mucosae through the villus, to be attached partly to the outer surface of the central lacteal, partly by expanded extremities to the basement membrane covering the surface of the villus. This combination of contractile structures, of which some run longitudinally along the lacteal spaces and others circularly about them, appears to afford an efficient mechanism whereby pressure can be exerted on the contents so that they are pumped into the communicating lymph spaces. Contractions of these muscle fibers are thus believed to tend to empty the central lacteal into the deep plexus of lymphatics and perhaps also to cause an expulsion of the contents of the spaces of the retiform tissues of the villus into the central lacteal.

For the most part the description of the function of the muscular mechanism of the villus has been limited to probabilities suggested by the facts of its anatomic structure. Direct observations of the motion of intestinal villi have lately been made by Hambleton[1] in the physiologic laboratory of the medical department of Vanderbilt University of Nashville. In animals that have been fasting the villi are generally found, on suitable microscopic examination, to be extended, fallen over in various directions, and covered with a mucus-like substance. Local application of solutions of a great variety of substances, for example, peptone, glucose, bile, saline, etc., is promptly followed by a rising of the villi and the

1. Brown, H. H.: The Explosibility of Grain Dust, Jour. Indust. and Engin. Chem., 1914, vi, 934.

1. Hambleton, B. F.: Note on the Movements of the Intestinal Villi, Am. Jour. Physiol., 1914, xxxiv, 446.

beginning of lashing-like movements in various directions. Soon a second distinct movement begins, consisting in an alternating shortening or retraction and an extension of the villi. These movements are independent of peristalsis. They may be checked by local application of 0.1 per cent. hydrochloric acid and influenced by the introduction of drugs into the circulation.

The observations, which have been quite constant on all animals examined, lead Hambleton to conclude that the "lashing" movements, which are not stopped by atropin, may aid in the mixing of the intestinal contents and thus promote the action of the digestive secretions as well as the process of absorption. The other forms of movement—retraction and extension—are probably of special value in the act of absorption, particularly through the lacteals. This type is abolished by both nicotin and atropin, a sign that it is under the control of the peripheral nervous mechanism. It seems strange that activities which can apparently be observed so easily have attracted so little attention on the part of investigators.

Current Comment

ARE THERE EXPECTORANT DRUGS?

When one stops to consider the prescriptions of alleged expectorants which are written literally by the hundreds day after day it may seem somewhat captious to ask whether the practice has any admitted scientific basis. Expectorants have been defined as agents which facilitate the removal of secretion from the air passages. This is accomplished by the movements of the cilia in the bronchial passages, by the act of coughing, or by the combined action of these agencies. The expectorant can facilitate the desired process by inducing a more abundant secretion into the respiratory passages or one which serves to dilute, as it were, a tenacious mucus and render it more easily transported out of the recesses to which it adheres. An even more effective participation in the expectorant process lies in the possibility of stimulating the musculature of the bronchi and thus accelerating the mechanical features of the act. By analogy this might be looked on as a sort of peristalsis of the contractile tissues involved. Wherever one turns, in the text-books and scientific journals, there is an extreme dearth of trustworthy information as to the mode of action of even the most widely used expectorants. This fact has been emphasized anew by Miller[1] of Chicago, who has searched for accurate bedside observation on the value of this class of drugs. The present situation may be summed up by admitting that the bedside study of the action of expectorants offers at present insurmountable difficulties. Admixture of saliva, the loss or gain of water in the respiratory tract, and other factors influencing the amount and viscosity of sputum, apart from the spontaneous changes that may occur as an incident of disease, offer variables too complex to untangle in human patients. Observations on animals, particularly on the exposed bronchial mucosa, have furnished the chief reliance for evidence of positive effects.[2] Miller has interpreted the available results with the conclusion that ammonium carbonate and ammonium chlorid and the emetic group of expectorants, as apomorphin and ipecac, when given in sufficiently large doses to animals, increase bronchial secretion. Ammonium salts by mouth in moderate doses do not increase bronchial secretion in the dog. Apomorphin and emetin when given to dogs in quantities considerably greater than the ordinary therapeutic dose for man do not excite increased bronchial secretion. In view of so much negative evidence it may be worth while again to investigate the evidence on which is based the custom of giving this class of drugs.

1. Miller, J. L.: The Clinical Value of Expectorants, Am. Jour. Med. Sc., 1914, cxlviii, 469.

THE COLLOIDAL GOLD REACTION IN EXAMINATION OF THE CEREBROSPINAL FLUID

Within recent years the examination of the cerebrospinal fluid has become of importance in conditions in which the meninges are involved, particularly if syphilis of the central nervous system is suspected. The information thus obtained is valuable as an index to the efficiency of treatment and also as an aid to diagnosis. The value of the Wassermann test and of determination of the cell-content of the cerebrospinal fluid in such cases is established. Abderhalden's method for the detection of certain ferments has not been perfected to the point which makes it practical for general diagnostic purposes in this field. The importance of the colloidal gold reaction, otherwise known as Nonne's or the gold chlorid test, has been recognized for some time, but until recently few have known within what limitations its value lay. It is essentially a test for an increase in the globulin content of the cerebrospinal fluid, using delicate color reactions in a standardized solution of colloidal gold as an indicator. The requisites for the test are cerebrospinal fluid obtained without a trace of blood, scrupulously clean glassware, and a colloidal gold solution prepared with extreme care. With these essentials at hand the performance of the test is comparatively simple. Miller and Levy[1] give explicit directions for preparing the solutions and performing and interpreting the results, together with an extended series of observations in which the results of Wassermann test on the blood and cerebrospinal fluid, cell and globulin estimation on the fluid and the colloidal gold reaction are compared in a great variety of clinical conditions. These tables show that normal cerebrospinal fluid gives negative reactions, but that in inflammatory conditions of the meninges, as tuberculous and purulent meningitis, the test is positive; hence it is of no value in distinguishing between these and syphilis. The reaction is inconstant in secondary and tertiary

2. The work of V. E. Henderson and A. H. Taylor (Expectorants, Jour. Pharmacol. and Exper. Therap., 1910, ii, 153) deserves especial mention in this field.

1. Miller and Levy: Bull. Johns Hopkins Hosp., 1914, xxv, 133.

syphilis, and has no advantages over other diagnostic procedures in these conditions. The evidence seems to show that the colloidal gold reaction is most constant in general paresis and hence will be found of most value in the differentiation of this condition from others with which it might be confused. The authors suggest that this test may be found more sensitive than others now employed for indicating the results of specific therapy in syphilitic diseases of the central nervous system. The report is an example of what should be done with every new procedure either curative, prophylactic or diagnostic. Tests should be made in large numbers of diverse conditions and conservative conclusions drawn from the results as to the value and limitations of the procedure in question.

SUGAR UTILIZATION BY DIABETIC ORGANS

The successful employment of surviving organs of the body in the study of the functions of the living cells has given an impetus to the investigation of problems which seemed impossible of attack by the older methods. Glandular structures like the kidneys, muscles like the heart, and complexes of tissues like the intestines—all continue their usual performances for some time when they are supplied artificially with aerated blood or physiologic saline solution. It is now understood that such functioning tissues may use sugar which is supplied with the nutrient perfusion liquid. This fact has given an opportunity to compare the sugar-consuming capacity of organs from normal animals and those which have been rendered diabetic. The question to be answered is this: Have the tissues of diabetic individuals lost the capacity to utilize sugar in the usual manner? Hitherto the attempts to answer this question by studying the metabolism of isolated organs have been confined essentially to the perfused heart. The results have been quite uncertain, owing perhaps to wide variations in the stored carbohydrate of the cardiac muscle which could not be estimated in advance. Newer investigations, on surviving intestine, conducted in some of the university laboratories at Budapest[1] have failed to evidence any difference between the intestine of the normal and the diabetic with respect to the utilization of sugar in the way indicated. Even after removal of the pancreas and the initiation of severe glycosuria the isolated tissue can still cause the usual disappearance of sugar from the medium that bathes it. It is important, at this stage of our knowledge of diabetes, not to consider the disappearance of sugar as identical with an actual combustion thereof to its ultimate products of metabolism, carbon dioxid and water. There are too many facts which speak against the retention of a normal capacity to burn up carbohydrates in pancreatic diabetes.[2] For the present we may reconcile the findings by the hypothesis that the katabolism of sugar occurs in stages. The oxidative stage is presumably interfered with by the diseased condition; a preliminary alteration of the sugar molecule may still be possible even in the pathologic organism.[3]

1. Verzár, F., and Krauss, J.: Die Verbrennung des Zuckers im Pankreasdiabetes. III. Mitteilung. Der Zuckerverbrauch des überlebenden Darmes von pankreasdiabetischen Hunden, Biochem. Ztschr., 1914, lxvi 48.

2. Variations in the Content of Sugar in the Blood, editorial, THE JOURNAL A. M. A., Jan. 10, 1914, p. 131; Dietary Treatment and the Sugar Content of the Blood in Diabetes, ibid., Aug. 22, 1914, p. 688; Where is Sugar Burned in the Body, ibid., Dec. 6, 1913, p. 2072.

3. Cf. Verzár, F.: Die Verbrennung des Zuckers im Pankreasdiabetes. V. Mitteilung. Biochem. Ztschr., 1914, lxvi, 75.

HEALTH CONDITIONS IN THE NAVY

According to the annual report of the Surgeon-General of the Navy,[1] this branch of our national defense, from a medical point of view is prepared to meet at least all peace-time demands. A summary of conditions during the year includes, among other important problems, the outbreak of small-pox on the *Ohio*, which was particularly noted by the lay press at the time. It will be remembered that there were twenty-nine cases of small-pox with five deaths. No cases occurred on the *Vermont*, although her men, examined and vaccinated just before sailing, were exposed in the same manner as those of the *Ohio*. An investigation showed, however, that no vaccination had been done on the *Ohio* for two years before the outbreak, and vaccination of the crew immediately after gave almost 90 per cent. of takes, about what would be expected in an unprotected community. Among 100 recruits received on the *Ohio* shortly before sailing for Europe and vaccinated at that time, not a single case occurred. The report mentions also a slight increase in malaria, which is accounted for by the cases occurring on ships in Mexican waters. The Surgeon-General suggests that the white uniforms of the "bluejackets" be replaced by something of a more serviceable nature, for example, khaki or forestry green. He comments frequently on the need for a hospital ship to accompany each fleet, especially in relation to the operations at Vera Cruz, and the lessons to be gained by their study. This report represents an accurate and informative discussion of the high quality of work in this service.

1. Annual Report of the Surgeon-General, U. S. Navy, for the fiscal year, 1914. Government Printing Office, Washington, 1914.

A NOTE ON THE NON-SPECIFICITY OF CYTOTOXINS

It has been demonstrated that the injection of certain cells into an animal of a foreign species results in the production of cytotoxins in the serum of that animal, but the opinions still differ as to whether or not these cytotoxins are specific for the particular tissue constituting the antigen. Lambert,[2] investigating this question, used tissues growing *in vitro*, which has the advantage over the other methods used by previous investigators of eliminating agglutination, thrombosis and hemorrhages, factors to which Pearce attributed some of the most striking lesions found in organs and tissues after the injection of cytotoxic serums. Rat sarcoma and embryo skin of rats, being suitable for this method, were injected into guinea-pigs, and the serum tested as to its inhibitive action on the growth of these tissues. Lambert found no specificity in the

2. Lambert: Jour. Exper. Med., 1914, xix, 277.

action of cytotoxins. The serum of animals injected with rat sarcoma inhibited the growth of this tissue as well as of the skin of embryo rats and vice versa. The injection of rat blood resulted in the production of substances toxic to these same tissues also, though to a less marked degree. Using the same technic, Lambert obtained similar results with tissues from the embryo chick.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Hookworm Infection in Howard County.—In the southern part of Howard County 22 per cent. of 300 people examined are reported infected with hookworm.

Personal.—Dr. Charles W. Garrison, Little Rock, head of the Rockefeller Hookworm Commission work in Arkansas, and assistant secretary of the State Board of Health, has been elected secretary and state health officer to succeed Dr. Frank B. Young, Springdale, who resigned to take the superintendency of the State Hospital for Nervous Diseases. Dr. Garrison has just been appointed collaborating epidemiologist for the government public health service for Arkansas.——Dr. James L. Greene, superintendent of the State Hospital for Nervous Diseases, Little Rock, has resigned. In a statement published by Dr. Greene, it is stated that the cause of his resignation was the enmity of the secretary of the State Charities Board, the reason for this enmity being that Dr. Greene refused to allow a tent to be installed on the hospital premises for the use of a brother-in-law of the secretary of the board, who is suffering from tuberculosis. Resolutions deploring the opposition of members of the State Board of Charities, which resulted in the resignation of Dr. James L. Greene as superintendent of the State Hospital for Nervous Diseases, were adopted by the Social Service Club of Pulaski County and the United Charities of Pulaski County, November 25.

CALIFORNIA

Medical Department Reorganized.—In accordance with regulations, an order was issued November 27, by the adjutant general dividing the medical department of the National Guard of the state into a medical and a hospital corps.

Personal.—Dr. Curtis H. Castle, Merced, a practitioner of the city since 1887, and once congressman from the district, has retired and his practice has been taken over by Dr. Edwin R. Fountain of Portland, Ore.——Dr. Frederic E. Shaw, city commissioner of finance of Sacramento, is reported to be seriously ill.

Mayor Must Be Physician.—Under the new charter amendments which were voted on favorably at Santa Monica, December 2, the city has adopted the commission form of government and the provision is made that the mayor shall serve as health officer. Under the old charter it is provided that the health officer shall be a graduate of a reputable medical college and that he shall practice medicine for at least five years. The first municipal election, under the new form, will be held in December, 1915.

GEORGIA

New Baptist Hospital.—The plans for the new Georgia Baptist Hospital, Atlanta, have been prepared. The new building will cost about $500,000 and will be composed of five units, each containing about 100 beds. One of the units is to be devoted exclusively to the treatment of children.

Personal.—In a $200,000 fire, at Eastman, November 24, the office of Dr. John Cox Wall was burned and a building owned by Dr. John B. Clark was also destroyed.——Dr. James T. Ross, Macon, has been elected chairman of the Bibb County Board of Health.——Dr. James D. Weaver, Eatonton, has been appointed a member of the State Board of Health.——Dr. William C. Thompson, Dublin, has opened the new Thompson Private Sanitarium at Dublin.——Dr. Wyman W. Pilcher, Warrenton, has been appointed official district examiner by the board of trustees of the State Sanatorium.

ILLINOIS

Personal.—Dr. George G. Craig, Jr., has resigned as city physician of Rock Island.——Dr. Cyrus T. Foster, Rock Island, was seriously injured in a collision between his automobile and a trolley car, November 20.

New Hospital.—Dr. James W. Pettit and associates, Ottawa, announce that the Illinois Valley General Hospital will be built on the South Bluff, west of the Ottawa Tent Colony, during the next year, at an expenditure of from $50,000 to $75,000. The first three buildings are to be the administration building which will be flanked on either side by an annex connected by corridors. Especial attention is to be given to the open-air treatment, and all classes of ailments will be treated at the institution.

Chicago

Public Health Exhibit.—A public health exhibit was opened at the City Club, 315 Plymouth Court, November 30, and will remain open until January 16. The exhibits include infant welfare, showing what it adds to the health of the community by the prevention of infant mortality and the limitation of illness; tuberculosis and the life-saving tendency of the education of the people; school hygiene, showing the protection and conservation of the younger generation; food inspection and the method in which food inspection protects against infection, dirty food and harmful adulterants; patent medicines and the good work of the crusade against these harmful products; environmental conditions and the dependence of the people for life and welfare on good surroundings, and that of the Chicago Department of Health and the Municipal Tuberculosis Sanatorium, showing how the administration of public health acts as an instrument for bettering the physical condition and health environment of the community. The greater part of the exhibit is devoted to pictorial charts and maps, graphic representations, etc. The display of the environmental conditions exhibit is one of the most effective: tiny models show a schoolroom with blackboard properly and improperly lighted with good and bad service; proper and improper lighting of a machine in a factory; the living room with four systems of lighting illustrated one after the other; good and bad printed paper, etc. Taken as a whole, the exhibition is creditable but would be more valuable were it less didactic and more pedagogic.

INDIANA

Tuberculosis in Richmond.—A special committee for Earlham College, Richmond, as the result of a sanitary survey, in reference to tuberculosis conditions in Wayne County, ascertained that there are more than 500 cases of tuberculosis in the city of Richmond alone.

Hospital Units Opened.—Two new units of the Indianapolis City Hospital were formally dedicated November 29, the principal address at the ceremony being delivered by Dr. Charles A. L. Reed, Cincinnati. These units have been named the Burdsal Units as they were donated to the city by the late Alfred Burdsal. They have been erected at a cost of $250,000, are three-story structures and provide accommodations for 250 patients. In order to furnish and equip these units, it has been necessary for the city board of health to negotiate a loan of $65,000.

Personal.—Dr. Abner H. Chaffee, Huntington, 86 years of age, was elected treasurer of Huntington County, at the November election and will assume the duties of his office January 1, next. Dr. Chaffee has been practicing medicine in Huntington since 1856, and during the Civil War he served as surgeon to the Seventy-Fifth Indiana Volunteer Infantry.——Dr. Paul E. Bowers, physician in charge of the Indiana State Prison, Michigan City, has delivered a series of lectures on clinical criminology at Valparaiso University.——Dr. Charles P. Cook, New Albany, was operated on for appendicitis at St. Edward's Hospital in that city, November 26.——Dr. Mavity J. Spencer has been appointed police surgeon of Indianapolis, succeeding Dr. Thomas L. Sullivan, Jr., who has been appointed superintendent of the City Hospital.

IOWA

Testimonial Dinner to Mayo.—The Des Moines Pathological Society gave a testimonial dinner to Dr. William J. Mayo, Rochester, Minn., November 28, at which more than

200 physicians were present. In the evening Dr. Mayo delivered an address on "The Septic Factors in the Three Great Plagues."

Personal.—Drs. Joseph C. Powers and Claude F. Osborne, Hampton, announce that they are about to discontinue the practice of medicine in order to prepare themselves for special work in connection with the new Lutheran Hospital. Dr. Osborne is to be surgeon in charge of the new hospital and Dr. Powers is to specialize on diseases of the eye, ear, nose and throat.——Dr. James Alderson, Dubuque, was seriously injured in a collison between his buggy and an automobile, November 21.——Dr. William A. Guild, Des Moines, has arrived in Paris and joined the medical staff of the American Hospital.

Annual Clinic at Medical College.—The physicians of the state were invited to attend the sixth annual clinic of the College of Medicine of the State University of Iowa, Iowa City, December 8 and 9. They were welcomed by the president of the university and on the first day clinics were conducted by Dr. Lee W. Dean of the university, and Dr. Reuben Peterson of the University of Michigan; in the afternoon laboratory demonstrations were given by the following members of the faculty: Drs. Henry J. Prentiss, John T. McClintock, Charles S. Chase and Henry Albert; a clinic on internal medicine was held by Dr. Campbell P. Howard, and after this a visit was paid to the new wing of the University Hospital. On the second morning clinics were given by Drs. Clarence E. Van Epps and John B. Kessler of the university faculty and Dr. Dean D. Lewis, Chicago; and in the afternoon a clinic was given by Dr. Charles S. Grant of the medical faculty, after which an inspection of the university buildings was made.

MINNESOTA

Personal.—Dr. George H. Freeman gave a dinner at the St. Louis Hospital for Inebriates, Willmar, November 24, in honor of Dr. H. W. Hill, executive secretary of the Minnesota Public Health Association. After the dinner an address was given by Dr. Hill before the Commercial Club.——Dr. Gertrude Booker Granger has succeeded Dr. John E. Crewe as whole-time health officer of Rochester.

MISSOURI

Physicians Fill Pulpits.—It is planned to have physicians occupy the pulpits in all the churches of St. Joseph on the Sunday in May next, immediately preceding the meeting of the State Medical Association.

Free Clinic Opened.—A free medical clinic is to be opened in a short time at Admiral Boulevard and Harrison Street, Kansas City. The institution will be a revival of the old Post-Graduate Hospital, which was discontinued some time ago. Dr. C. Lester Hall is president of the new organization.

State to Sell Diphtheria Antitoxin at Low Price.—The State Board of Health has made arrangements for distributing antitoxin at prices ranging from 40 cents for 500 units to $4 for 10,000 units. The city of St. Louis already distributes antitoxin free to persons who cannot afford to buy it, but it is said that many who cannot afford to pay the prices charged by druggists for antitoxin, hesitate to apply for it as paupers. The number of cases of diphtheria reported in St. Louis for five weeks up to November 23 was 546.

New Hospital.—The plans for the Public Hospital bequeathed to St. Joseph by the late Charles W. Noyes have been completed. Mr. Noyes left a bequest of $250,000 to be applied to the erection and maintenance of a hospital to bear his name and the hospital is to be located at Frederick Avenue and Twenty-Fourth Street.——Papers of incorporation of St. Joseph's Hospital, Kansas City, were signed November 30. The building is to cost $500,000 and will be of brick and stone, six stories in height and in the form of an X, and will accommodate about 250 patients.

St. Louis

Leper Found in St. Louis.—The city bacteriologist has diagnosed leprosy in the case of a Greek who came to America in 1912. It is expected that he will be deported by the immigration authorities.

Preventive Medicine Lectures.—A series of lectures on preventive medicine is being given by the Social Service Department of the St. Louis Children's Hospital in the lecture room of that institution on Tuesday afternoons. The series began November 24 and will end January 5.

Free Antitoxin.—Health Commissioner Max C. Starkloff announces that he will apply to the municipal assembly for an appropriation of $3,600 to cover the expense of the free distribution of diphtheria antitoxin by the city. He also states that he will prepare and have presented before the legislature at the January session, a plan providing for the erection of a state bacteriological laboratory in which diphtheria antitoxin will be made and distributed free or at cost.

Medico-Historical Loan Exhibit.—The St. Louis Medical History Club opened a loan exhibit at Jefferson Memorial, December 5. The exhibit is to remain open for two weeks and includes many matters of historical interest, not only to physicians, but to all citizens. Among these are, an autographed letter from Dr. Moses L. Linton in 1847 accepting the professorship in obstetrics and diseases of women in St. Louis University; another from Dr. William Beaumont in 1836, accepting the chair of surgery; other documents of interest are, a petition presented in 1836 appealing for financial assistance for the medical department and an autographed letter from Dr. Daniel Brainard, accepting the chair of anatomy and another autographed letter from William Greenleaf Eliot, accepting as trustee for the medical department; valuable portraits were contributed by Washington University; rare old books have been loaned by Dr. Edward C. Streeter, Boston, and the John Crerar Library, Chicago; and valuable documents have been contributed by Dr. William Pepper, Philadelphia, and the Surgeon-General of the Army.

NORTH CAROLINA

Personal.—Dr. Claude L. Pridgen, Kinston, formerly connected with the State Board of Health, has located in Wilmington.——Dr. Clyde H. Hemphill, Drexel, has returned from New York and will locate in Goldsborough, limiting his practice to diseases of the eye, ear, nose and throat.

Hospital Notes.—Irvin Memorial Hospital, Mount Airy, was formally opened November 12. The building has been erected by Mrs. A. B. Irvin as a memorial to her son, Leonard Irvin. It is a two-story and basement building, fully equipped and has accommodations for thirty patients.——Rex Hospital, Raleigh, held its annual remembrance or donation day, November 11.

NEW JERSEY

Personal.—Dr. Frank H. Carber, Newton, has succeeded Dr. Edward A. McLaine as chief resident physician to the Scranton State Hospital.

Medical Staff Resigns.—The medical staff of All Souls Hospital, Morristown, has resigned in a body to take effect January 1, unless the board of managers make certain changes which the physicians assert are necessary for the proper conduct of the hospital.

Diphtheria.—To November 17, 119 cases of diphtheria had been reported in Jersey City. Dr. Frank H. Edsall, Wilmington, Del., city health superintendent, stated that the city board of health was handicapped by the lack of a well-equipped laboratory and city bacteriologists.

Precautions in Construction of Water Reservoir.—Atlantic City is now building an addition to its storage water reservoir, and in order to protect the water-supply is making a test of its workmen on the job. Dr. Edward Guion, chief of the health department, is making Widal tests in order that no typhoid carrier shall take part in the work on the reservoir.

NEW YORK

New Counsel for Medical Society.—The Medical Society of the County of New York has appointed George W. Whiteside as its counsel. He has been on the staff of the district attorney for seven years.

Personal.—The trustees of the Clifton Springs Sanitarium Company have elected Dr. Malcolm S. Woodbury, superintendent, vice Dr. James G. Mumford, deceased.——Dr. Orie M. Grover, Dunkirk, has been appointed associate physician to the State Reformatory for Women, Bedford Hills.——Dr. Joseph E. Clark has entered on his work as sanitary superintendent for the counties of Oneida and Herkimer.——Dr. Clinton P. McCord, Albany, has been appointed chairman of a committee to organize the open-air-school workers of the state. This movement is closely associated with that for medical examination of schoolchildren and school buildings.

Physical Educators Organize.—At the annual convention of the New York State Teachers' Association in Albany, N. Y., November 23-25, the school medical inspectors and

physical educators of the state gathered in the Section on Hygiene and Physicial Education and presided over by Dr. Thomas D. Wood of Columbia University, effected a formal organization to be known as the New York State Association of School Medical Inspectors and Physical Educators. Dr. Clinton P. McCord, health director of the schools of Albany, was elected president and Mr. Edward F. Brown, superintendent of Child Welfare of the Charity Organization Society of New York City, was elected secretary. It is the plan to meet in conjunction with the State Teachers' Association each autumn and to hold another meeting or school health convention at some other season of the year, supplemented by local meetings on school health in various sections of the state at various times through the year. New York state has a mandatory law on medical inspection of schools which is most comprehensive in its provisions and applies to the entire state outside of the three cities of the first class.

New York City

Herter Lectures.—The faculty of the University and Bellevue Hospital Medical College announce that the annual course of lectures under its Herter Foundation on "Aspects of the Physiology and Pathology of Growth" will be delivered by Prof. Lafayette B. Mendel, Ph.D., of Yale University, New Haven, Conn., December 10, 11, 14 and 15, at the Carnegie Laboratory, New York City.

Safety and Sanitary Exhibit.—The American Exposition of Safety and Sanitation will hold an exposition in New York City, December 12 to 19, under the auspices of the American Museum of Safety. Among the topics which have prominent place on the program are those for which special days have been set aside, namely, fire prevention, sanitation, building safety and employees.

Society Repudiates Compensation Law Fee Schedule.—At a meeting of the Medical Society of the County of New York held November 23, a motion was unanimously adopted providing "that the schedule of fees for physicians working under the workman's compensation law, is insufficient compensation and is hereby repudiated by the Medical Society of the County of New York and that its delegates to the state society are instructed to introduce a resolution to the same effect at the next meeting of the state society and to support it in every way possible."

Extension of Public Health Education Work.—The Bureau of Public Health Education, recently organized under the department of health, is cooperating with a number of teachers in the training schools and high schools in giving their students an insight into the work of the department. The students use one of the bureau's monographs as a textbook in their work in hygiene and in municipal government, following their studies by a visit to the health exhibit in the building of the department of health. In addition to this the bureau has arranged for extension lectures to the students in their schools similar to those given the employees of the department.

Tuberculosis Week.—The week, November 29 to December 5, was "Tuberculosis Week" in this city. The department of health supplied special tuberculosis talks in fifty-six lecture centers of the lecture bureau of the board of education. The records show that the death-rate from tuberculosis in New York City has fallen from 2.37 in 1900 to 1.60 in 1913. It is observed that the enthusiasm that marked the earlier campaigns against this disease is on the wane, and if progress is to be made, more must be done to strike at the underlying causes of tuberculosis. Hence the present efforts are laying emphasis on the housing problem, the necessity for more institutional accommodations for advanced cases, the provision of proper employment and remuneration proportionate to the patient's needs and not merely to his earning capacity, and the advisability of periodic physical examinations of all employees.

PENNSYLVANIA

Philadelphia

Nurses Have Diphtheria.—Seven nurses of the Polyclinic Hospital are being treated at the Philadelphia General Hospital for symptoms of diphtheria. Several wards of the Polyclinic are under quarantine.

Memorial to Morgan.—A meeting of the John Morgan Memorial Committee of the Philadelphia Alumni Society, Medical Department, University of Pennsylvania, was held November 19, when further plans were made and discussed looking toward the main object of the committee, the erection of a suitable memorial which shall do proper honor to the man who was the founder of medicine in the United States—Dr. John Morgan.

Medical Society Banquets.—The tenth annual banquet of the West Philadelphia Medical Association was held at the Hotel Rittenhouse, November 24. Dr. Benjamin F. Wentz, president of the society, was toastmaster, and the speakers were Dr. William L. Rodman, president-elect of the American Medical Association; Dr. William Duffield Robinson, president of the Philadelphia County Medical Society; Drs. Edward E. Montgomery, Samuel D. Risley, William S. Wray and Abram B. Hirsh.

Personal.—Dr. Alfred E. Cohn, of the Rockefeller Institute, will lecture before the College of Physicians, December 14, on "Clinical Electrocardiographic Studies on the Action of Digitalis."——Dr. Peter N. G. Schwenk resigned November 30 from the medical staff of the Pennsylvania Hospital after thirty-two years of service as surgeon in the eye clinic of the outpatient department. A silver loving cup was presented to Dr. Schwenk by the staff of the hospital.——Dr. George S. Crampton has been elected attending surgeon to the eye department of the Pennsylvania Hospital to fill the position left vacant by the resignation of Dr. Schwenk.

Woman's College News.—The Woman's Medical College of Pennsylvania has come into possession of two small houses. This enables the college to vacate rooms now occupied by nurses and will add to the capacity in the maternity department, making it possible to accommodate ninety-four patients in all departments.——The maternity of the college has been moved to Twenty-First Street and North College Avenue, immediately adjoining the college.——A moving-picture film has been prepared illustrative of college and hospital life of women medical students. This film is to be exhibited at the Panama Exposition, San Francisco.

SOUTH CAROLINA

Continuation of Thompson-McFadden Pellagra Commission Work Desired.—At the request of the grand jury and the Spartanburg County Medical Society, Dr. James L. Jefferies, Spartanburg, has taken up with the State Board of Health the advisability of urging a legislative appropriation for the continuation of the Thompson-McFadden Pellagra Commission at Spartanburg. It is said that it would be an irretrievable loss to the state to lose the work of the commission.

Medical College Building Ready.—The new building for the Medical College of South Carolina, Charleston, was formally transferred to the board of trustees of the institution, November 18. The address of the occasion was made by Dr. William S. Currell, president of the University of South Carolina. The building is three stories in height. On the first floor are the faculty rooms, the administration room, assembly hall, the clinical laboratories and library. The second floor is devoted to the pharmaceutical and pharmacological, anatomical and pathological and the dissecting room, while on the third floor are located the lecture rooms and the laboratories of chemistry and bacteriology.

TEXAS

Association Changes Name.—The Texas Antituberculosis Association of Austin has filed an amendment changing its name to the Texas Public Health Association of Austin.

Personal.—The house of Dr. W. D. Poe, Sherman, was damaged by fire November 8.——Dr. Alonzo A. Ross, Lockhart, sustained a lacerated wound of the face in an automobile accident, November 8.

Hookworm Campaign to Be Extended.—Dr. Morris H. Boerner, Austin, state director of the Texas Hookworm Commission, announces that Gregg and Harrison counties have each made an appropriation of $200 to aid the state in eradicating hookworm; work will commence during the early part of December. Upshur and Rusk counties also are expected to make appropriation soon. Dr. Knight W. Field, county health officer of Dallas County, plans to test each child in the county schools for hookworm, to give stereopticon lectures on health and to establish medical stations in the county where treatment may be given for hookworm. The commissioners' court has appropriated $300 for medicine.

WISCONSIN

Personal.—Dr. Louis Schapiro, Milwaukee, has accepted an appointment on the International Health Commission of the Rockefeller Foundation. After traveling through the southern states with other members of the commission, Dr. Schapiro will go to Costa Rica. After initiating work in the eradication of intestinal parasites, he will leave it in charge of local physicians and then probably will take charge of

work in northern Egypt.——Dr. Peter J. Christofferson, Waupaca, had a finger amputated at St. Mary's Hospital, Oshkosh, as the result of an infected wound.——Dr. Henry A. Peters has been elected vice-president, and Drs. Michael R. Wilkinson and Walter S. Wing have been elected directors of the Oconomowoc branch of the Wisconsin Antituberculosis Association.——Dr. Sidney H. Wetzler, Milwaukee, sustained severe burns of the shoulders and chest by the overturning of his automobile, November 7.

Report on Tuberculosis Sanatorium.—The third biennial report of the Wisconsin State Tuberculosis Sanatorium has just been issued. There has been a marked increase in the number of patients treated during the last two years, during which time the capacity of the sanatorium has been increased by the erection of two new patients' cottages and an infirmary, having a combined capacity of fifty-five beds. A new two-story cottage is now being built, which will increase the capacity of the sanatorium to 170 beds. The superintendent recommends a still further increase by the building of another unit of twenty beds for women, and enlarging the infirmary, so as to make a complete capacity for 200 patients. Other improvements are recommended to cost approximately $61,000. ——The new Brown County Tuberculosis Sanatorium has been completed and was opened to receive patients December 1. The construction of the sanatorium came within the appropriation of $22,000. The site and 26 acres surrounding it cost $3,000 and the Brown County board has made an appropriation of $4,000 for interior fittings and furnishings. The institution has twenty bedrooms for patients and two wards.——Kenosha has voted for an appropriation of $20,000 for the erection of a tuberculosis sanatorium for Kenosha County.——Of the $30,000 bond issue for the construction of the Winnebago County Tuberculosis Sanatorium, all but $7,500 has been subscribed.

CANADA

Personal.—Dr. Watson Dykes, Duncan's Station, B. C., has been appointed medical officer of health of South Cowichan, Victoria, B. C.——Drs. John Taylor Fotheringham, James A. Roberts, William B. Hendry and Arthur C. Hendrick are among the Toronto physicians who will go abroad with the second Canadian contingent.——Dr. Albert G. Nicholls, Montreal, McGill University, assistant in pathology and clinical medicine, has been appointed to the chair of pathology in Dalhousie University, Halifax, N. S.

Hospital Reports.—At the seventieth annual meeting of the Montreal Maternity Hospital it was reported that during the last year 1,169 patients were treated as compared with 1,243 the previous year. During the year a nurses' home had been purchased at a cost of $50,000 through a bequest of the late Mr. James Ross. The expenditures and revenue for the year were $40,384 and $41,124, respectively, showing a deficit of $740. The superintendent, Dr. William Bauld, having departed for the war, Dr. C. E. Holbrook has been elected in his stead.

Montreal Vital Statistics for 1913.—After considerable delay the report of the medical officer of health for the year 1913, Montreal, has appeared. In spite of persistent efforts to check infant mortality, the report shows that it increased over 1912 by 1.73 per cent. During 1913 no fewer than 5,732 children died in Montreal under 5 years of age, or 51.65 per cent., of the total mortality. Montreal's infantile mortality rate is one of the highest in the world, being nearly double that of Baltimore, a city approximately of the same size. The deaths due to contagious diseases showed a large increase, as follows: measles, 136; scarlet fever, 184; diphtheria, 173; typhoid, 106; tuberculosis, 897. The deaths in 1912 from these diseases were 14, 80, 77, 94 and 894, respectively.

GENERAL

Correction.—The notice in THE JOURNAL of December 5, entitled "Experimental Biologists to Meet," stated erroneously that the name of the federation was the "Southern Experimental Biologists." The correct title of the organization is "The Federation of American Societies for Experimental Biology."

Experimental Biologists to Meet.—The Federation of American Societies for Experimental Biology composed of the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, and the American Society for Experimental Pathology, will hold its next annual meeting at Washington University Medical School, St. Louis, Mo., December 28 to 30.

Red Cross Seals Having Wide Sale.—The Red Cross Seal for 1914 is a reproduction of the jovial Santa Claus. It is having a wide sale. The stamps make a desirable addition to every gift package and represent a thought for those sufferers who should not be overlooked, amid the great disasters occasioned by the war.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for Destitute Crippled Children, and Mary Thompson Hospital of Chicago for Women and Children, each $100,000 by the will of Alexander A. McKay.

Rockefeller Institute, New York City, $200,000 to be used in research work leading to a cure for cancer, by the will of Henry Rutherford.

University of Pennsylvania, $10,000 for the endowment of a room in the Agnew Pavilion of the hospital connected with that institution, in memory of her husband, Dr. Molton H. Forrest, by the will of Mrs. Emma L. Forrest.

Germantown Hospital, $1,000 by the will of Jenny E. Disston.

Presbyterian Hospital, Philadelphia, $1,000; Philadelphia Society to Prevent Children from Cruelty, $2,000; Philadelphia Society for Organizing Charity, $1,000, by the will of Miss Augusta Tabor.

Nursery and Child's Hospital, New York City, $1,500 by the will of J. Howard Wright.

Eastern District Hospital and Dispensary, Brooklyn, $5,000, by the will of Frederick B. Mollenhauer.

Awarding of Nobel Prizes Postponed.—It is announced from Stockholm that the distribution of the Nobel prizes has been postponed to next fall. After that year, the date of awarding the five prizes is to be changed from December 10 to June or July 1. This will bring the prizes for both 1915 and 1916 into the latter year; they amount to about $38,000 each. As it will be so long before we hear from these prizes again, it may be interesting to recall that to date the prize in medicine has been awarded in turn to Behring, Ross, Finsen, Pawlow, Koch, Ramon y Cajal and Golgi, Laveran, Ehrlich and Metchnikoff, Kocher of Switzerland; Kossel, professor of physiology at Heidelberg; Gullstrand, professor of ophthalmology at Upsala, Sweden; Alexis Carrel and to Richet of Paris. The prize has thus gone to Germany and to France twice each, once each to England, Denmark, Russia, Switzerland, Sweden and America (Carrel), and been divided once between Spain and Italy and once between Germany and France—a truly international list.

Disbanding of Rockefeller Sanitary Commission.—The Rockefeller Sanitary Commission which has had in charge the eradication of hookworm in the southern states under the fund of $1,000,000 granted by John D. Rockefeller in 1909, will disband at the close of the present year. The forces of the commission at that time will be withdrawn from all the states in which they have been working except eight, and the work in these will be taken over by the Rockefeller Foundation, a separate organization. The foundation will close up the work in five of the eight states March 1, 1915, and the remaining three on June 30. Under the foundation there has been created an International Commission on Health which will undertake work for the promotion of health in all parts of the world in cooperation with health departments of all countries, and especially will cooperate in the constructive development of state health forces, not alone with reference to hookworm, but in connection with other health conditions.

Dr. Knopf's Prize Essay as Aid to Tuberculosis Campaign.—Dr. S. A. Knopf informs us that Dr. S. Breitenfeld's Bohemian translation of the seventh American edition of Dr. Knopf's international prize essay, "Tuberculosis as a Disease of the Masses and How to Combat It," has just appeared in book form. The translation appeared first in serial articles in the Bohemian Daily, *New Yorske Listy*. On account of there being many large Bohemian colonies throughout the United States, the appearance of the translation is welcomed by all who are interested in the tuberculosis problem, and particularly by physicians practicing in Bohemian colonies. The latest American edition of this essay is now also being translated into Spanish by Dr. Jesus E. Monjaras of Mexico City. The translation of the essay into various European and Asiatic languages since its original appearance in Germany some ten years ago, speaks well for the universal interest now taken in the antituberculosis campaign throughout the civilized world.

FOREIGN

Death of Spanish Physician Aviator.—Dr. Cortijo, who recently lost his life in an accident to his aeroplane, was a medical officer in the Spanish army and member of the aviation corps.

Malaria in Italy.—The report of the Italian Red Cross for 1912-1913 states that six units were sent into new territory and four into the Pontine marshes and one to the Campo Soriano. The number of cases in the district near Rome was only 5.1 per cent. and in the Pontine marshes 4.9 per cent., the lowest figures yet reached. Dr. P. Postempski is the medical inspector in chief for the service.

Typhoid at Barcelona.—Our Spanish exchange, the *Siglo Medico* of November 7, states that the severest epidemic of typhoid Barcelona has ever known is prevailing there now, although the mortality is not very high. One daily estimates that there have been 30,000 cases, and a communication from a local physician places the number as much above 15,000, while the authorities have over 5,000 registered cases. The hotels were crowded with refugees from the war zone, but the city is now deserted by all of them who can leave. Notwithstanding vigorous sanitary measures the epidemic shows no signs of abating, 400 cases a day being still reported.

Hookworm in Iquitos, Peru.—Dr. George B. Converse, U. S. Public Health Service, has returned to San Francisco from Iquitos, Peru, where, at the request of the Peruvian government, he has spent almost three years investigating the death-rate of about 50 per 1,000 and instituting sanitary reforms. Yellow fever and hookworm were the diseases responsible for the greatest amount of the mortality and morbidity. His work was hampered by lack of hospital facilities. Before he left, however, he had succeeded in reducing the death-rate to 21 per 1,000 and had established a well-equipped clinic.

WAR NOTES

Lack of Medical Supplies in Servia.—Servian hospitals are said to have run short of anesthetics early in November. There is also a shortage of surgical instruments in the field hospitals.

Queen Visits War Hospital.—Queen Mary of England visited the American Hospital at Paignton, England, November 29, and commended most highly the administration of the institution.

Graduating Class Volunteers as a Body.—Every member of the graduating class of the medical school connected with Dalhousie University, Halifax, N. S., has volunteered for service in the European war.

More Surgeons Needed for Russians.—In response to an appeal from Russia for surgeons, the American Red Cross has arranged to send two more surgeons to reenforce the units already on duty with the Russian forces.

Anesthetics Still Needed.—The British War Relief Association, Washington, has sent five cases of chloroform to the American ambassador in Paris, and letters from France appeal for still further contributions for anesthetics.

Scientist Taken Prisoner.—Dr. Albert Calmette, director of the Pasteur Institution at Lille, a staff officer in the French medical service, who has been missing for some time, is now said to be a prisoner of war at Munster, Westphalia.

Decorations for German Medical Officers.—The *Münchener med. Wochenschrift*, November 10, states that the iron cross has been conferred on 920 physicians to date. The iron cross of the first class was awarded during the Franco-Prussian War only to Langenbeck, Wilms and Bardeleben.

Change from Quarterly to Monthly.—On account of the rapid increase of membership of the American Red Cross and the broadening of its field of usefulness, the *American Red Cross Magazine* will hereafter be issued monthly instead of quarterly, beginning with the January number.

Medical Officers in German Army.—The surgeons with the German army rank as officers and are entitled to wear sidearms. The authorities have also recently announced that civilian medical men serving in the field are entitled to a pension if incapacitated by wounds or sickness and the family to a pension in case of death.

Dissolution of the International Public Health Office at Constantinople.—Our German exchanges state that the government of Turkey has suspended the operations of the *Internationale Sanitätsrat* and invited the members to join the medical corps of the Turkish army. The International Health Office was mainly engaged in supervising the pilgrimages to Mecca and preventing the importation of epidemic disease into Europe.

War News In Germany.—Germany seems to be in part shut off from communication with France and England. According to the *Deutsche med. Wochenschrift* of November 12, nothing has been heard from its London correspondent since the war began, and its Paris correspondent is at work in an ambulance in Germany. It reproduces entire the long Paris Letter in The Journal of September 19, and the London Letter in the issue of September 26. War makes strange arrangements necessary and it is interesting to find a German periodical printing from an American publication news of English and French activities.

Clothing Gifts for Europe.—The American National Red Cross requests that all gifts of clothing, and hospital garments and supplies for the distressed people of Europe, be forwarded freight prepaid, to the American Red Cross, Bush Terminal, Thirty-Ninth Street and Second Avenue, South Brooklyn, N. Y., and that the Bureau of Medical Service, Washington, be notified of the number of suit cases, packages, etc., with approximate contents and day on which they were forwarded. Bills of lading should be sent to the address at South Brooklyn. Second-hand clothing is not acceptable, but new clothing, hospital garments and hospital supplies, such as sheets, pillow cases, towels, etc., are always useful.

Behring and Metchnikoff.—Metchnikoff will be 70 years old next year, and a *Festschrift* for him has been in preparation at Paris for this anniversary. Behring had intended to contribute an article to it, but the breaking out of the war prevented his article reaching the publishers on time, that is, before September 1. He now publicly announces (November 12) that he hopes "before the anniversary in question, next May, to manifest in some other way my respect and unwavering friendly sentiments for Metchnikoff on the occasion of his seventieth birthday." Metchnikoff is a Russian, and has devoted the last twenty-six years of his life to research at the Pasteur Institute at Paris. His discovery of the phagocyte was made before he went to Paris. Like Pasteur, he never completed the medical course.

LONDON LETTER

London, Nov. 15, 1914.

The Kind of Nurses Wanted at the Front

Sir John French has made it known that no one is wanted near the fighting line except fighting men and fully trained men and women pledged to devote themselves to the duty of healing and nursing the wounded for the duration of the war. The amateur nurse is of no use there. He very wisely adds that women who want to enlist in the great army of nurses that will be needed before the war is finished should be learning their profession at home till their services at the front are asked for. "The standard of British hospitals here," he is reported by the special correspondent of the *Daily Call* as saying, "is so high and admittedly so far above that of all the rest, that women chosen to serve with British comrades on this side of the channel should lack no qualification she can with diligent effort acquire. The thoughtful skill of a few seconds may save a life. There is never a moment to be lost in these crowded nights when the lives of a hundred poor victims hang by a thread and the watchful zeal of a patient, resourceful woman alone can avail." Sir John French concludes with the warning that it is time that every woman in Britain who has intelligence and the requisite earnestness should begin, if she has not yet done so, to learn the elements of nursing, if only "first aid," for the war must be long and there will be many gaps to fill.

Aid for Our Belgian Colleagues

Physicians have suffered like the rest of the Belgians, and those who have survived have been completely ruined. According to Professor Jacobs of the University of Brussels, who is now in this country, some have had to work as navvies in order to obtain a few pence. Others have not seen bed for a fortnight and have lived exclusively on potatoes. Some have had a bunch of straw and lie on the ground, and they and their children are dressed in rags. A professor of a university was bereft of everything and in dire want of a bed. Another was seen wandering haggard over the countryside searching in vain for his family. Some have been taken as hostages; others have been shot and their widows and orphans left destitute. Of the 4,800 physicians of Belgium, 1,000 are absolutely destitute and most of the remainder are suffering cruelly. In my last letter I announced the formation of a committee of the leaders of the medical profession for the aid of our Belgian colleagues. It has been decided to dispatch to Belgium packets of medical and pharmaceutical material which will be received by the American ambassador.

The committee appeals to the medical and pharmaceutical professions in this country for funds to enable their Belgian colleagues to begin work as soon as military circumstances permit. It also asks for surgical instruments, not necessarily of the latest pattern. The following are especially required: scissors, dressing and artery forceps, syringes and midwifery forceps. Further, money is wanted to help the refugee physicians and pharmacists in this country who have nothing left in the world. It is proposed to associate our work with corresponding efforts in the United States and other countries. Subscriptions may be sent to Dr. H. A. Des Voeux, 14 Buckingham Gate, London, S. W. Many physicians in this country are offering hospitality to their colleagues, and the British Medical Association has given the use of the office as a clearing house for collecting their names through the *British Medical Journal*.

Sanatogen and the War

The government has prohibited all trading with the enemy and the carrying on of any business in this country which is the property of enemies resident in Germany. This has proved a blow to one of the most successful of the fraudulent nostrums of the day, Sanatogen. As it is a German preparation it can no longer be sold. An attempt has been made to evade this prohibition. An application was made to the Home Secretary for permission to convert the business into an English limited company. He refused to sanction such an arrangement and directed that steps should be taken to prevent any profits being transmitted to the proprietor during the war. A British company has now been formed for the sale of a product termed "Sanaphos," which is wholly British owned and British made. It is being widely advertised in the daily press as displacing Sanatogen. The public is informed that "Britishers and their allies are now independent of Sanatogen." "All patriotic men and women," it is said, "will welcome an opportunity of obtaining a British product instead of benefiting an alien enemy by taking a German-owned preparation." "Sanaphos is an all-British preparation, and the fact that the company producing it is under the chairmanship of Sir William Taylor, K.C.B., the late Surgeon-General of H. M. forces, and that the article is produced under the direct supervision of a distinguished analyst, are sufficient guarantees of its efficacy and superiority. Sanaphos has its basis in English milk, and, unlike Sanatogen and its imitations it retains all the active enzymes of milk, and is not a mere dried casein preparation. The extravagant prices at which Sanatogen was sold not only enriched its German owner, but prevented its use among those who could not afford such prices. Those who see, in themselves or in members of their families, the results of the new cares, new duties and general strain of war-time, involving nervous or mental depression or physical exhaustion should take steps at once to procure a supply of Sanaphos to be used as an addition to ordinary diet." Evidently the same old game. The Germans have no monopoly in fraudulent claims.

PARIS LETTER

PARIS, Nov. 12, 1914.

The Waterproofing of Military Clothing

Ever since the war of 1870 chemists have proposed a method of waterproofing military clothing by the use of watery solutions of aluminum acetate. The objection has been raised that the results are not sufficiently permanent, for the waterproofing disappears under repeated friction, as by the straps of the haversack, etc. Moreover, if the metal braid and buttons of the uniform are not detached before the treatment, they will be covered with verdigris; besides the procedure spoils the looks of the clothing, which requires a long time to dry. M. G. A. LeRoy has reported to the Académie des sciences a process of waterproofing which seems free from these objections. It is based on a very light impregnation of the fibers of the cloth with anhydrous wool fat (adeps lanae anhydrosus) dissolved and diluted in a neutral and volatile anhydrous vehicle. Wool fat is first liquefied by means of a little chloroform, carbon bisulphid or carbon tetrachlorid and then diluted and dissolved in automobile gasoline or the benzin employed by cleaners. The proportions employed are from 5 to 10 parts of wool fat and from 90 to 95 of solvent. The whole uniform, with its braid and buttons, is immersed in the liquid for a few minutes, then wrung out and placed in the air to dry. The fat, fixed in the fibers and pores of the cloth on the evaporation of the solvent, cannot be removed by friction like the particles of the aluminum acetate. The waterproofing is perfect and the appearance of the cloth, its porosity, its color and its elasticity are not modified. An important hygienic advantage is that the cloth remains permeable to air and perspiration.

Treatment of Gangrenous Military Wounds

Apropos of the paper by Professor Quénu on the treatment of gangrenous military wounds by opening up and sterilizing with hot air (THE JOURNAL, Nov. 28, 1914, p. 1967), Dr. Paul Thiéry, surgeon of the hospitals of Paris and agrégé of the Faculté de médecine, recommends the use, in serious cases of septicemic military wounds, of hypodermic injections of from 0.01 to 0.02 gm. of pilocarpin repeated daily. The profuse perspiration caused by the pilocarpin, together with the ingestion of abundant liquid, sometimes even with intravenous injection of a physiologic solution of sodium chlorid, produces a veritable lavage of the blood, which is less depressing than bleeding and which relieves the blood of toxins while preserving the blood corpuscles. This procedure is capable of giving good results even in desperate cases. Thiéry insists, moreover, on the necessity of return to the most energetic measures of the old antiseptic surgery (concentrated solutions of zinc chlorid).

BERLIN LETTER

BERLIN, Nov. 3, 1914.

The War

The effort of the head of the army medical service to care for the enormous number of wounded as quickly and as well as possible has caused the enrolment of a constantly increasing number of physicians in the army. Physicians who belong to the military reserves have already been employed. Physicians who, for physical reasons, have never undergone military service have also been enlisted, in some cases at the seat of war and to a greater extent in the hospitals in their home towns. In this way also some relief has come to many physicians whose practice has been diminished through the departure for the seat of war of a large number of men, among whom are workmen who are exposed to industrial diseases and accidents. This circumstance alone does not explain the fact that many gynecologists and pediatrists complain of a striking lack of professional work; other causes must be found. In the first place, the war may be considered as occupying our minds so completely that in many cases it has crowded out complaints which affect the welfare of men in normal times and cause them to seek medical aid. This applies, particularly, to the large mass of nervous complaints of women but also to the milder organic diseases, which lose importance in comparison with the great tension and the not inconsiderable care for the welfare of the fatherland and for relatives in the field. In addition, there is doubtless an economic factor, the necessity to limit expenses as much as possible in view of the lessened income. Even in times of peace, physicians are well acquainted with the fact that avoidance of a physician's fee is regarded as preferable to the restriction of food or similar demands. Finally, there has been no epidemic of importance. While in autumn, we are often enough sufferers from measles, scarlet fever, typhoid, etc., these diseases so far have not appeared in any notably greater degree than in the summer months.

Epidemic Diseases

From the point of view of the public health and the psychic and economic life of our city, the absence of epidemics is most gratifying. Their importation, so liable to occur in war, has not taken place. In this respect we are better off than our ally, Austria-Hungary. There an invasion of cholera has occurred, both from the Servian and the Russian troops; in Hungary and Galicia several hundred cases have been observed. In view of the nearness of the two allied countries, of course, the danger for us of seeing the unbidden guest on our boundaries is not slight. But we may hope that the excellent organization of our sanitary service will be able even under the present serious condition to protect our boundaries, and even if a transmission of the disease should occur, to restrict it to sporadic cases. Although the war has already lasted three months, and the conditions of the weather in the last month have not been favorable, other war pestilences which, in former times, have demanded an enormous number of victims, so far have not occurred to an extent worth mentioning. Already in the East, where we have come into such unpleasant contact with the permanent epidemic foci of Russia, the number of typhoid cases observed is so small that it has scarcely exceeded the first hundred, and in the same manner dysentery is confined to very moderate limits. It is noticeable, moreover, that affections

of the intestine accompanied by bloody diarrhea have been observed in which the germ of dysentery could not be demonstrated. In the West, the prevalence of typhoid seems to be somewhat more marked, but there also are apparently only a few hundred cases, which is also true of dysentery. Whether the typhoid preventive vaccination, which has been carried out to a great extent in our various armies, is of any essential importance in causing this restriction of typhoid, cannot at present be decisively determined. In this respect, a more definite idea will be obtained by comparison of the typhoid cases which occur without prophylactic inoculation with those which occur in spite of it. Small-pox has not hitherto been observed. This fact is not remarkable, for our army, even in time of peace, has been free from small-pox and now all troops have been vaccinated previous to going to the front. Moreover, among the French, vaccination has been better carried out than in the war of 1870-1871; at that time, as is well known, both the civil population and also the army was attacked with small-pox and many deaths occurred in the army. Also among the French prisoners of war who were confined in Germany, small-pox prevailed at that time to a considerable degree, and the disease was communicated by them to the German civil population.

The Number of Wounded

It is not generally known to what extent the weather has had an influence on the origin of colds, especially on pneumonia. So far as I know, large numbers of these cases have not been observed in the hospitals. An estimate of the number of wounded can be made from Berlin alone, where, in the hospitals and in the private clinics, casinos, restaurants and other buildings devoted to hospital purposes, more than 12,000 beds for the wounded have been provided. The arrangements are in general, as I have been able, personally, to convince myself, of the model kind. Even the improvised hospitals have quickly met the highest demands for comfort and for the care of the sick. Roentgen apparatus is generally in use with good operating rooms, individual rooms, etc. The course of wounds and diseases remains in general very favorable, and even severe wounds heal in part without disturbance of function, and the convalescents are anxious to return to the front as soon as possible. In this way, place is found for fresh cases. As I learn, 5,073 men have been already dismissed from one of the Berlin convalescent stations since its institution, August 30. Of these, 1,899 (37.5 per cent.) went immediately to the front, 2,854 (56 per cent.) were transferred to the reserve department of the army and only 322 (6.5 per cent.) were incapable of service. As the reserve department of the army naturally very soon dismisses to the front the majority of those sent to it, and as the figures quoted refer only to one of the many stations for those slightly wounded, an approximate estimate may be made of the enormous number of wounded and sick soldiers who have recovered and who are now fighting again in the ranks of the army. The same is true of the hospitals of other countries, and thus it is possible for the stream of transports for the wounded to pass without disturbance and without stopping, from the field of battle to their homes where, it is easy to understand, the patients are better taken care of than in the field hospitals. It is also evident that in this way the origin and spread of diseases is limited. Recovery also is favored by the better provisions for nursing in the home towns. Several head surgeons of the hospitals have described to me how the wounded who were brought here directly from the field of battle and who came here exhausted, not only as the result of their wounds but also from the severe strain of the battle, took a new appearance of life after twenty-four hours of rest in a good bed and careful feeding and were scarcely recognizable. Everything that human care and gratitude is capable of is done for the restoration of the wounded. It is touching and inspiring to see how rich and poor, high and low, compete to show their love for those who have given their blood for the fatherland. In the hospitals, concerts are given by noted artists, declamations, humorous performances and, of course, divine service—everything that will have a favorable psychic influence on the sick. If they are able to go they are taken to the theater, to the zoological gardens and to other places of recreation. One might almost get the impression that the wounded were being coddled and that they would feel so much the more severely the contrast between the agreeable home land and the rough war to which they return. However, this objection is of little consequence in comparison with the strengthening of the spirit which must be accomplished by the activity in the general undertaking. That this activity for our soldiers is expressed also by the amount expended for presents is natural.

Marriages

KENNA JACKSON, M.D., Richwood, W. Va., to Miss Neva Bernice McMillion of Love Ridge, W. Va., at Washington, D. C., November 4.

MARY CATHERINE COUCH, M.D., Chicago, and Mr. Tomas T. Mora of Fajardo, P. R., at Rio Piedras, P. R., November 19.

LIEUT. GEORGE CORWIN BEACH, M. R. C., U. S. A., to Miss Jessie Spencer of National Soldiers Home, Va., November 16.

RAFE CHESTER CHAFFIN, M.D., Los Angeles, Cal., to Miss Marion Quinn of Ottawa, Ont., at Los Angeles, November 17.

WALTER CHAFEY MOODIE, M.D., Newcastle, Neb., to Mrs. Mabel Odom of Walthill, Neb., at Macy, Neb., November 7.

COLONEL JAMES EDSON MILLER, M.D., Brooklyn, N. Y., to Miss Lucy Regina Berry of New York City, November 14.

HARRY LESLIE FRANKLIN LOCKE, M.D., to Miss Katherine Elizabeth Entress, both of Hartford, Conn., November 11.

THOMAS FRANCIS HENRY, M.D., Salem, Mass., to Miss Jennie Frances Moore of Woburn, Mass., November 11.

CHARLES PATTON BLAIR, M.D., Monmouth, Ill., to Miss Lena Blanche Wilson of Des Moines, Ia., October 10.

ERNEST HENRY GRUENING, M.D., Boston, to Miss Dorothy Elizabeth Smith of Norwood, Mass., November 19.

WILLIAM GEORGE PATTON, M.D., to Miss Emma Elizabeth Giessing, both of Farmington, Mo., November 17.

CHARLES HARTWELL COCKE, M.D., Asheville, N. C., to Miss Amy Grace Plank of Philadelphia, November 12.

ROBERT VINCENT WILLIAMS, M.D., to Miss Matilda Reinhart, both of College Point, N. Y., November 19.

LIEUT. CHESTER R. HAIG, M. C., U. S. A., to Miss Hilda Morse of Merchantsville, N. J., November 11.

CHARLES P. RENNER, M.D., to Miss Gertrude Harst, both of Belleville, Ill., at St. Louis, November 17.

HERBERT C. BLAKE, M.D., Baltimore, to Miss Helen Niely of Paradise, Catonsville, Md., November 14.

CLAUDE CARLISLE CAYLOR, M.D., to Miss Alice Donnelly, both of Washington, D. C., November 18.

WALTER WILSON GRIFFIN, M.D., Manhattan, to Miss Mattie Fox Vaughan of Brooklyn, November 16.

HENRY GIFFORD BULL, M.D., Ithaca, N. Y., to HELEN DUDLEY, M.D., of Brooklyn, November 21.

CLYDE EARL WILSON, M.D., to Miss Caroline Grace Geyman, both of Blue Earth, Minn., November 12.

ROBERT EMMETT FLANNERY, M.D., to Miss Mary Kearns Black, both of Chicago, November 11.

Deaths

Charles Wood McMurtry, M.D. Harvard Medical School, 1897; a Fellow of the American Medical Association; a member of the New York Academy of Medicine and many dermatological societies; instructor in dermatology in the College of Physicians and Surgeons in the City of New York; assistant dermatologist to the Vanderbilt Clinic and St. Luke's Hospital, New York City; for eleven years connected with the Dermatological Clinic at Breslau, Germany; died at his home in New York City, November 26, after an operation for appendicitis, aged 42.

Henry X. Bonebrake, M.D. Bellevue Hospital Medical College, 1865; a Fellow of the American Medical Association and formerly president of the Medical Society of Franklin County; for many years in charge of the State Tuberculosis Dispensary, Chambersburg, Pa.; visiting physician to the Chambersburg Hospital and Franklin County Almshouse, and county inspector for the State Department of Health; died November 22, at the State Sanatorium, Markleton, Pa., from chronic nephritis and arteriosclerosis, aged 71.

Sherbourne William Dougherty, M.D. University of Pennsylvania, Philadelphia, 1894; a Fellow of the American Medical Association; instructor in physical diagnosis in his Alma Mater and chief of the medical clinic at the German Hospital, Philadelphia; later assistant physician at the Methodist Hospital and physician to the Society for the Prevention of Cruelty to Children; died at the home of his sister in Philadelphia, November 23, aged 45.

William Wightman Mangum, M.D. Atlanta (Ga.) Medical College, 1893; a member of the Medical Association of Georgia; and formerly president of the Butler County, Ala., and Floyd County, Ga., medical societies; local surgeon at Rome, Ga., for the Nashville, Chattanooga and St. Louis Railway; medical director of the Cherokee Life Insurance Company; died in the Grady Hospital, Atlanta, Ga., November 18, aged 47.

Clark M. Galloway, M.D. Medical College of Ohio, Cincinnati, 1877; of Xenia, Ohio; a member of the Ohio State Medical Association; chief of staff of the Old Sailors' and Soldiers' Home, Xenia; a veteran of the Civil War, and medical director for the Department of Ohio of the Grand Army of the Republic in 1890-91; died at the home of his brother in Dayton, November 20, aged 70.

James W. Gaines, M.D. Medical College of Ohio, Cincinnati, 1886; a Fellow of the American Medical Association; professor of otology in the Medical Department of the University of Kansas; laryngologist and rhinologist to St. Joseph's Hospital, Kansas City, Mo., and consultant to St. Margaret's Hospital, Kansas City, Kan.; died at his home in Kansas City, Mo., November 22, aged 51.

William Henry Baker, M.D. Harvard Medical School, 1872; founder of the Gynecological School for Advanced Students at Harvard; founder of the Free Hospital for Women, Brookline, Mass., and surgeon emeritus of that institution; a member of the Massachusetts Medical Society; died at his home in Waltham, November 26, from heart disease, aged 69. (Bu)

Evan Cameron, M.D. Medical School of Maine, Brunswick, 1869; Bellevue Hospital Medical College, 1872; of Elyria, Ohio; a Fellow of the American Medical Association; founder and formerly president and treasurer of the Lorain County Medical Society and coroner of Lorain County; died in the Memorial Hospital, Elyria, October 8, from pneumonia, aged 65.

James Leeworthy Camp, M.D. Rush Medical College, 1879; a member of the Minnesota State Medical Association and of the Advisory Commission of the Minnesota State Sanatorium for Tuberculosis, Walker; for thirty years a resident of Brainerd, Minn.; was found dead in his bed in Brainerd, November 22, from heart disease, aged 59.

Harold Willis Hartwell, M.D. University of Michigan, Ann Arbor, 1883; New York Homeopathic Medical College, New York City, 1884; died at his home in St. Louis, November 17, from heart disease, aged 56.

Philip G. Creveling, M.D. Pennsylvania Medical College, Gettysburg, 1858; for more than half a century a practitioner of New Jersey; died at the home of his daughter in Broadway, N. J., November 5, aged 80.

Andrew S. Low (license, years of practice, Pennsylvania, 1888); for forty-three years a practitioner of Pennsylvania and a veteran of the Civil War; died at his home in Philadelphia, November 9, aged 77.

J. M. Pounds, a pioneer practitioner of Hays County, Texas, and a veteran of the Mexican and Civil wars; died at his home near Dripping Springs, Texas, October 20, from arteriosclerosis, aged 87.

Andrew J. Jackson, M.D. University of Buffalo, N. Y., 1873; a Fellow of the American Medical Association; died at his home in Matawan, N. J., November 17, from pneumonia, aged 72.

Thomas W. Botkin (license, Indiana, 1897) for forty-five years a practitioner of Farmland, Ind.; died at the home of his son in that place, November 19, from cerebral hemorrhage, aged 70.

James C. McIntosh, M.D. University of Pennsylvania, Philadelphia, 1846; one of the oldest practitioners of Knoxville, Tenn.; died at the home of his son in that city, November 8, aged 89.

J. H. Sensabaugh (license, Tennessee, 1889); a Confederate veteran and formerly a clergyman of the Methodist Episcopal Church; died at his home in Knoxville, November 8, aged 69.

Erving Asa Libbey, M.D. Medical School of Maine, Portland, 1897; a member of the Providence (R. I.) Medical Society; died at his home in Cranston, R. I., October 7, aged 39.

O. M. Humston, M.D. Louisville (Ky.) Medical College, 1874; a member of the Kentucky State Medical Association; died at his home in Campbellsburg, Ky., November 14, aged 63.

Samuel P. Brundige, M.D. Medical College of Ohio, Cincinnati, 1872; a veteran of the Civil War; died at his home in Marion, Ind., November 10, from cerebral hemorrhage, aged 77.

Isaac N. Smith, M.D. Medical College of Ohio, Cincinnati, 1874; of Greenfield, Ohio; died at the Good Samaritan Hospital, Cincinnati, November 6, from carcinoma, aged 67.

Charles S. Morris (license, Colorado, ten years practice, 1900); formerly of Snyder and Julesburg, Colo.; died in his home in Brush, November 11, from pneumonia, aged 70.

Charles Eugene Harvey, M.D. Bellevue Hospital Medical College, 1889; Medical School of Maine, Brunswick, 1889; died at his home in Bristol, Vt., September 26, aged 51.

Alexander McCully, M.D. Washington University, St. Louis, 1902; formerly of Wellsville, Mo.; was found dead at his home in Nooksack, Wash., October 27, aged 36.

Carl Edward Maaser, M.D. University of Iowa, Iowa City, 1914; of Waverly, Ia.; died in the General Hospital, Montreal, Que., October 18, from septicemia, aged 26.

Thomas W. Hightower, M.D. Southern College of Medicine and Surgery, Atlanta, Ga., 1914; died at his home in Atlanta, August 18, from pneumonia, aged 32.

Daniel Kingsbury, M.D. Metropolitan Medical College, New York City, 1852; died at his home in Glastonbury, Conn., November 16, from senile debility, aged 86.

Pierce Tyrrell, M.D. Eclectic Medical Institute, Cincinnati, 1866; one of the oldest practitioners of Illinois; died at his home in Elgin, November 19, aged 85.

Robert Emmett Foley, M.D. Bennett Medical College, Chicago, 1880; died at his home in Stockton, Cal., October 28, from disease of the heart and liver.

Allen J. Alston, M.D. Howard University, Washington, D. C., 1890; a colored practitioner of Boynton, Okla.; died at his home in that place in August.

Joseph R. Blackford, M.D. University of Tennessee, Nashville, 1895; died at his home in Linton, Ky., November 4, from cerebral hemorrhage, aged 42.

Charles M. Eaton, M.D. Medical College of Indiana, Indianapolis, 1878; died at his home in Robinson, Ill., September 10, from nephritis, aged 68.

Joseph Lowman Campbell, M.D. Western Pennsylvania Medical College, Pittsburgh, 1889; died at his home in Chicora, Pa., November 9, aged 53.

Thomas Rud Wingo, M.D. Jefferson Medical College, 1860; a Confederate veteran; died at his home near Trezevant, Tenn., November 5, aged 88.

Alonzo William Morelen, M.D. Medical School of Maine, Brunswick, 1902; of Cherryfield, Maine; died in Bangor, Maine, October 11, aged 43.

B. Blake Minor, Jr., M.D. McDowell Medical College, St. Louis, 1866; died at his home in Beaumont, Texas., November 1, from cerebral hemorrhage.

Thomas M. Howard, M.D. Louisville (Ky.) Medical College, 1878; died at his home in Boonville, Ind., November 17, from asthma, aged 68.

Milton Covert (license, Ohio, 1896) for twenty-six years a practitioner of Youngstown, Ohio; died at his home, November 15, aged 61.

James William Bryant, M.D. University of Louisville, Ky., 1873; died at his home in Lyerly, Ga., November 10, from tuberculosis, aged 54.

Amos H. Farrish, M.D. Atlanta (Ga.) College of Physicians and Surgeons, 1901; died at his home in Perry, Ark., November 3, aged 45.

Thomas N. Moxon, M.D. Central Medical College, St. Joseph, Mo., 1896; died at his home in Salida, Colo., November 8, aged 50.

Elmer Dallus Snyder, M.D. Louisville (Ky.) Medical College, 1892; died at his home in Radnor, Ind., September 5, aged 49.

Joseph Arrington Blick, M.D. Jefferson Medical College, 1859; died at his home in Petersburg, Va., November 3, aged 78.

John S. Wilson (license, Missouri, 1883); died at his home in Deepwater, Mo., November 8, aged 66.

Jason Roberts, M.D. Medical College of Ohio, Cincinnati, 1865; died at his home in Osceola, Ia., November 5, aged 77.

James Leslie, L.R.C.S. Edin., 1858; died at his home in Hamilton, Ont., October 18, aged 82.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE EDITORIAL DR. JEKYLL AND THE ADVERTISING MR. HYDE

While THE JOURNAL has devoted more space to criticizing the lack of consistency between the editorial and advertising departments as it appears in medical journals, its existence in the lay press has not been overlooked. Franklin P. Adams who conducts a "colyum"—"The Conning Tower"—in the New York *Tribune* thus sums up the case as it applies to newspapers:

THE DOUBLE STANDARD

"Important is the nation's health
Naught is the question of the shekel.
Ill fares the land that worships wealth!"
Says Editorial Dr. Jekyll.
**"Do you get up with pains or cricks?
Do you have stitches in the side?
BUY DR. KILLMAN'S VI-TE-LIX!"**
Says Advertising Mr. Hyde.

"Down with the greedy grafters who
The land's escutcheon do bespeckle!
Three cheers for the Red, White and Blue!"
Says Editorial Dr. Jekyll.
**"Does zero weather give you chills?
Insomnia leave you weary-eyed?
BUY PHAKEM'S PHONY PURPLE PILLS!"**
Says Advertising Mr. Hyde.

"Better than gold an honest name."
"Be true, and let the envious heckle."
"Be fair, whoever wins the game,"
Says Editorial Dr. Jekyll.
**"Lost energy? Ambition? Calm?
GET DR. FIERCE'S GILDED GUIDE
REMEMBER BIDDY BUNKEM'S BALM!"**
Says Advertising Mr. Hyde.

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

[Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Articles with the titles starred will be printed in full in the Reports of the Council on Pharmacy and Chemistry for 1914. A reprint of any of these unabridged reports will be sent on receipt of a two cent stamp. Previous instalments of abstracts appeared in THE JOURNAL, November 14 and November 21.]

Alborum

The Whitehouse Chemical Company, Inc., Lynchburg, Va., gives the ingredients of Alborum (without specifying the proportions), as boric acid, alum, phenol and oil of peppermint, and its properties as antiseptic, germicide, deodorant, astringent, hemostatic and prophylactic. The manufacturers recommend it:

". . . In the treatment of Leucorrhoea, Pruritus, Vaginal Catarrh, Gonorrhoea, Inflammation of the Genital Organs, and the various Diseases of the Vagina and Uterus . . . In burns, irritable painful lacerations, and in infected wounds, Alborum is often very serviceable."

Such recommendations for its use can only result in injury to the public health. The preparation lacks originality and is unscientific; its exploitation for the purposes suggested in the advertising matter submitted is contrary alike to the best interests of the public and to scientific medicine. The Council, therefore, held Alborum to be ineligible for inclusion with either New and Nonofficial Remedies or the appendix.

The Council's action was transmitted to the Whitehouse Chemical Co. for comment. Instead of objecting to the report, the company asked the Council to "cancel" the application for the examination of the product. Believing that the medical profession is entitled to the facts in the case the Council directed publication of this report.

Betul-ol *

Betul-ol (E. Fougera and Co., New York) is a methyl salicylate preparation advertised to physicians (and indirectly to the public) as an external analgesic and antirheumatic. The statements regarding its composition are vague, misleading and, as shown by examination in the Chemical Laboratory of the American Medical Association, untrue. The therapeutic claims are based on discarded theories. Although the alleged superiority of natural over synthetic salicylates has been disproved, physicians are urged to use Betul-ol because it contains, or is alleged to contain, a natural salicylate. Another discarded theory is pressed into service in the claim that the chloral in the mixture will be absorbed and converted into chloroform in the blood. The recommendations for the use of Betul-ol in rheumatism are likely to lead the public to the self-treatment of rheumatism. In view of the serious complications and sequelæ of rheumatic fever this recommendation is utterly unjustifiable and a danger to public health—even if the external application of this mixture in uncertain doses were as effective as a proper internal use of salicylates—a theory contrary to experience and unsupported by adequate evidence.

Cystogen, Cystogen Aperient and Cystogen-Lithia*

Cystogen is the therapeutically suggestive name applied to hexamethylenamin by the Cystogen Chemical Company. While investigation has shown that hexamethylenamin yields formaldehyd only in the presence of an acid and consequently can produce an antiseptic effect only in the gastric juice and in the urine, it is claimed that Cystogen is an "intestinal antiseptic" and that it "bears its disinfectant and antitoxic qualities into well-nigh every important bodily cavity."

As the sale of a simple drug even with the aid of the most extravagant claims probably did not offer sufficient opportunity for an extensive proprietary propaganda, the Cystogen Company has put out two other preparations, Cystogen Aperient and Cystogen-Lithia, and finds it an easy matter by means of extravagant claims, unwarranted assertions and pseudo-scientific arguments to recommend the use of one or another, or often all three, in a well-nigh endless number of diseases.

As the continued patronage of the medical profession cannot be relied on for proprietaries of this sort, the Cystogen Chemical Company takes good care that every Cystogen prescription is likely to spread the Cystogen gospel among the people. The Council has directed publication of its report on the Cystogen products to call attention to the way in which a simple drug of established value may be made the basis of an extensive proprietary propaganda. A conservative discussion of the action of hexamethylenamin appears in the Council's publication "Useful Drugs."

Cysto-Sedative

Cysto-Sedative is sold by Strong, Cobb and Company, Cleveland, Ohio, with the claim:

"Each fluid ounce represents:
Thuja Occidentalis, 3½ grains.
Pichi, 18 grs.
Saw Palmetto berries, 36 grs.
Triticum Repens, 36 grs.
Hyoscyamus 8 grs.
All inert extractive matter being eliminated."

The therapeutically active constituents of arbor vitæ, pichi, saw palmetto and couch grass have never been isolated—indeed, it has not been proved that all of these drugs contain any therapeutically active constituents. Yet the absurd claims are made that all inert matter has been eliminated and each lot of drug used in the preparation of Cysto-Sedative is "tested in reference to its medicinal activity." Equally preposterous is the claim:

"In formulating Cysto-Sedative each drug entering into its composition was subjected to careful study clinically to determine the exact proportion required when combined to increase their efficiency as a whole. Cysto-Sedative is scientifically prepared, the proportion of each individual drug being so finely adjusted as to increase their therapeutic action in the conditions for which they are intended, forming a preparation always reliable and of the very highest medicinal activity."

Some other extravagant claims made for this complex unscientific mixture are:

"It gives relief in almost every form of cystitis and prostatitis . . ."

"The best results are obtained in the worst chronic cases of cystitis and prostatitis . . ."

"In Cystitis, Urethritis, Prostatitis, Inflammation of the Vesicle Neck, complicated with Gonorrhoea, Enuresis, Painful Micturition, the action of Cysto-Sedative is prompt."

The Council voted that Cysto-Sedative be refused recognition.

Ergoapiol*

Ergoapiol (Martin H. Smith Co., New York) is a mixture put up in capsules each of which is said to contain

Apiol (Special M. H. S.)	5 grains
Ergotin	1 grains
Oil Savin	½ grain
Aloin	¼ grain

Examination discloses the fact that, contrary to the claim made, each capsule, instead of containing 5 grains of Apiol, really contains some liquid preparation of the type of oleoresin of parsley seed. Ergoapiol is recommended (on the label) for such diseases as "Amenorrhea, Dysmenorrhea and other Menstrual Disorders," while a circular enclosed in the package contains many suggestions that may be counted on to lead to its indiscriminate and uncritical use.

Ergoapiol is an unscientific, shot-gun mixture of drugs having widely different therapeutic effects. Where the action of parsley is desired, the effects of ergot would ordinarily, be contra-indicated; furthermore, neither aloin or savin would be called for in conditions that demanded the effects of apiol. It would be impossible to predict the action of a mixture of this kind in the varying conditions for which its use is advised by the manufacturers. To combine four drugs of dissimilar action in fixed proportions for the routine treatment of conditions which have little in common except that they involve the female generative organs, is unscientific and absurd. The Council refused admission to Ergoapiol.

Alcohol in "Patent Medicines"
The amount of alcohol in some "patent medicines" is shown here in terms of undiluted whiskey! Whiskey contains 50 per cent. alcohol.
The whiskey flasks are reproduced natural size. The whiskey in each flask has the same amount of alcohol as is contained in one bottle of the nostrum named above it.
LYDIA PINKHAM'S Vegetable Compound
PAINE'S Celery Compound
VINOL
HOSTETTER'S BITTERS

Miniature reproduction of an educational poster prepared by the Propaganda for Reform Department. Twenty-eight different posters already prepared, illustrate various phases of the evils of nostrums and quackery. In the original the placards measure 22 by 28 inches. A catalog of the complete set will be sent on request.

Apergols*

Apergols, put out by H. K. Wampole Co., Inc., is alleged to be a "Uterine Stimulant." Apergols is apparently an inversion of the name Ergoapiol and the preparation appears to have essentially the same formula, namely:

Apiol	5 min.
Oil Savine	½ min.
Ergotin	1 gr.
Aloin	½ gr.
Aromatics	q. s.

As in Ergoapiol, the constituent referred to in the formula as "Apiol" appears to be oleoresin of parsley-seed instead of the definite substance apiol described in New and Nonofficial Remedies. In general the claims made for Apergols are the same as those made for Ergoapiol. The Council refused admission to Apergols because they are advertised indirectly to the public, because of unwarranted therapeutic claims, because of the non-descriptive name and because the product is unscientific.

Gastrogen Tablets

The Bristol-Myers Co., Brooklyn, N. Y., sells Gastrogen Tablets which are described as "A Neutralizing Digestive" to be "used in connection with Sal Hepatica." Sal Hepatica, it will be remembered, is another product of the Bristol-Myers Company and has been the subject of previous unfavorable comment. The label on a recently purchased package of Gastrogen Tablets contains the following:

"For gastric distress, weak stomach and dyspepsia, one to two tablets after eating; repeat in half an hour if needed.

"Also indicated in nausea, flatulence, sour stomach and heartburn."

While these recommendations sound as if they were addressed to the public, Gastrogen Tablets are advertised in medical publications and hence come within the scope of the Council. Gastrogen Tablets are said to be composed of pepsin, calcium carbonate, calcium phosphate and "aromatics." As each tablet, according to the label, contains 7 grains of calcium carbonate (chalk), the recommended dosage would in most cases be sufficient to neutralize the gastric fluids in the stomach and would thus tend to prevent the pepsin from exerting its digestive effects. The means adopted to relieve one symptom of dyspepsia, in other words, defeats the action of the means for relieving the indigestion. The fact is that patients who need an antacid do not need pepsin, while those who need pepsin will be harmed by the administration of an antacid. Gastrologists hold that, except in rare cases, the evidence tends to show that wherever there is a sufficiency of hydrochloric acid there is a sufficiency of pepsin. When pepsin is lacking it should be administered along with hydrochloric acid to make it effective. The Council voted that Gastrogen Tablets be refused recognition.

Iodalia *

Iodalia is sold by Geo. J. Wallau, Inc., with the claim that because of the peculiar combination in which it contains iodin it is a valuable and efficient substitute for iodids. The preparation was examined in the Chemical Laboratory of the American Medical Association, which reported to the Council that, contrary to claim, iodin in the form present in Iodalia, would when administered, act like an ordinary iodid. Further the proportion of iodin present was so small that to administer the equivalent of 20 grains of potassium iodid it would be necessary to give the contents of a one-dollar bottle of Iodalia. In view of this report it is evident that the claim that Iodalia is "always well tolerated" and that it cannot produce "symptoms of iodism" is true only because of the small percentage of iodin it contains. The claims made in the advertising matter, that Iodalia is an efficient iodin medication in the treatment of syphilis, that it is a suitable substitute for cod-liver oil and that it may be used in anemia, dysmenorrhea, dyspepsia, malaria and diseases of the heart, are entirely unwarranted.

Iodalia is exploited in a way to suggest its use to the public for a host of diseases. Particularly reprehensible are the recommendations contained in a circular which accompanies the trade package that Iodalia:

". . . offers the same protection against grippe, bronchitis, pneumonia, tuberculosis, pleurisy and other infectious diseases that vaccine does against small pox . . ."

"It is also the best preventive against the slight infections and ailments to which debilitated and delicate children are subject."

The Council voted that Iodalia be refused recognition.

Iodotone*

Eimer and Amend, New York, who market Iodotone, state that it is a solution of hydrogen iodid (hydriodic acid) in

glycerin, containing 1 grain of iodin to each fluidounce. The unwarranted assertion is made that Iodotone

". . . will produce the constitutional effect of iodine in a shorter time than other preparations . . ."

This cannot be true, for it is certain that, because of the alkaline reactions of the tissues, iodids, whether administered as hydrogen iodid or as alkali iodids, must circulate in precisely the same form and therefore exert the same therapeutic effects in precisely the same way.

Eimer and Amend further assert that the ordinary iodids may to advantage be replaced by Iodotone. The absurdity of this claim is apparent when it is considered that it will be necessary to administer nearly one fluidounce of glycerin to obtain an amount of Iodotone equivalent to a 10-grain dose of potassium iodid. The additional claim that Iodotone will not disturb the stomach or produce the usual disagreeable symptoms of iodism is evidently unwarranted, for it is generally conceded that symptoms of iodism can be avoided only at the risk of insufficient iodin medication. Because of these unwarranted and misleading claims and because the name Iodotone would tend toward the uncritical use of the preparation as a general tonic, the Council voted that Iodotone be refused recognition.

Nourry Wine*

Nourry Wine (E. Fougera and Co., New York) is a proprietary iodin preparation said to contain 12 per cent. of alcohol and 1½ grains of iodin in combination with tannin to the fluidounce. Experiments made in the A. M. A. Chemical Laboratory demonstrate that the iodin contained in Nourry Wine is present either in the form of iodid ions or in a form very readily yielding iodid ions and that therefore its action will be that of ordinary iodid. Yet a circular asserts:

"The Nourry Wine is the one preparation . . . able to introduce into the organism the active metalloid liberated little by little from the organic combination . . ."

While Nourry Wine contains but an insignificant proportion of iodin, the circular claims that "Nourry Wine presents a high dose of iodin." Further, the label on Nourry Wine and the circular which is wrapped with it suggests its use in a number of diseases in which iodin medication is considered of minor importance. These recommendations, bolstered up by testimonials from twelve to twenty-five years old, are likely to lead the public if not the medical profession to use this weak iodid wine where efficient treatment is called for. The attempt is made to give a further false value to Nourry Wine in the minds of those who prize everything that is foreign by the suggestion that it comes from France when in reality it is made in New York. In conclusion the Council held that, though the alcohol of the wine is the most potent constituent, the constant use in the advertising matter of the term "Nourry Wine," unqualified by the adjective "Iodinated," was mischievous as likely to lead to the thoughtless use of the preparation in cases unsuitable for iodin medication. The Council refused recognition to Nourry Wine.

Correspondence

Postgraduate Study; Foreign Realities Versus American Remedies

To the Editor:—We all know the enthusiasm with which American physicians have sought the European clinics of Berlin and Vienna for postgraduate medical work. Hundreds of physicians each year flock thither. They stay varying lengths of time but generally are content with a few weeks or two or three months at the most. To the average layman such study in Europe casts a halo of superiority about the physician possessing it. It is a matter of common parlance to say, "Dr. So and So, yes, he has studied abroad, in Vienna." Most physicians in this country who are doing serious work and who are unable to go abroad for study look on Berlin or Vienna as their Carcassonne. If they never attain it, it remains a source of lasting regret or constant longing. Physicians will often make great sacrifices in order to visit the foreign clinics. Many of them are uncritical and easily persuaded of the tremendous advantages of the work. Some are frankly doing it just for a good time and for the advertisement which they know such a vacation will bring them on their return. But I am convinced that there is an ever-increasing number of physicians who go with all enthusiasm and expectation and who come back disappointed and disillusioned about foreign study. This in no way is a reflection on the medical profession in Germany, for they are only supplying the demand of the American physician and giving him what he wants. Neither does this statement apply to those who spend a year or more in serious work in a foreign clinic. But *they* are relatively few. They generally remain at one clinic and do not put in an appearance at the large centers.

The Germans are just beginning to appreciate American medicine and to read American literature. Why they have been so slow in recognizing the high standard of our work may be partly constitutional, but is, I think, much more directly due to the impression which American physicians studying abroad make. They are undoubtedly not representative of the best in the profession in America. The Anglo-American organization in Berlin and the American Medical Association of Vienna are partly responsible, in that they encourage the quick-lunch variety of study and have so organized special monthly courses for foreigners that it is almost impossible to make the Germans believe that we are not all quasi-quacks. The physician receives his medical pabulum as rapidly and in as large doses as he can pay for it. Go to any lunch counter at home and you may see a similar sight. All the crudities and mannerisms for which we are caricatured are in evidence, from the method of handling table utensils to the manner of stoking food and the peculiarities of our national tastes. Go to Vienna and you can see the same phenomena at the medical lunch counter. Some are there for one month and they gorge themselves, eating much and digesting little. Others are there for the side shows and the beer and take only food enough to get their certificate, which the University of Vienna issues to any one who can pay the price of a course whether he attends or not. Generally courses are served up in German and so rapidly served that the average American loses the meat and gets only the names. Sometimes the attempt is made to furnish English dishes, and then the job is generally botched. The German language alone is an all-sufficient argument against postgraduate study for the average American physician. All the teaching is didactic, and this again condemns it from the point of view of serious work in modern medicine. The laboratory method is after all the only safe one. In Vienna, you find men taking the most indigestible mixtures. Surgeons "brushing up" in neurology, gynecologists taking a little dab from the "Freudian School," many men listening to the refinements of differential diagnosis, who know almost nothing of the fundamentals. Most of the patrons of this great medical lunch counter get wildly enthusiastic, but they understand little of what they are eating and you are reasonably certain that they will have mental indigestion of the worst kind if they do not actually become seasick on their return and lose it all. What few misgivings they may have are obliterated by the general air of enthusiasm and the thought that nobody at home is any the wiser.

Without the slightest danger of being called snobbish, the average American physicians in Vienna most of us wish to avoid. Their absence is more flattering to our pride than their presence. Many of them are avowedly on a vacation. Others frankly say that their community only needs to be told that a man studied in Berlin to increase its respect for him. One man told me that he must visit Berlin before he returned as it was regarded as *the* center in his community. I suggested in joke that it might be enough to ride through and he acquiesced in all seriousness and I afterward learned that he spent one afternoon in Berlin on his way home. Such instances are not uncommon. A larger number, however, are perfectly sincere, but do not recognize how little they are really getting for their money and how infinitesimal is the knowledge which they carry home with them. These physicians go because it is the thing to do and they stay when

they get there because they are uncritical and do not realize the absurdity of it all.

Physicians at large do not as yet appreciate the laboratory method in medical education and still cling to didactic teaching. It is a much easier thing to eat a meal set before you than to prepare the meal for your own delectation. But you cannot learn cooking from eating; neither can you learn medicine from hearing it taught.

A further reason for the continued popularity of foreign study is the fact that the general public is also in ignorance of its real value. It is our duty to set the facts before the public and enlighten them so that the name of "specialist" appended to one who has lived in Vienna for a few weeks will not be the open sesame to a lucrative practice.

Our other clear task lies before us: the efficient organization of postgraduate study here at home. We have all the facilities but lack organization. Now that the foreign market is closed, this is not only a duty but an imperative necessity and will be an opportunity for advancement and growth in this country to which the opprobrium of self interest cannot be attached. Whatever outside commercial advantages may come to us through the war they are far less important than the development of our own resources through cooperation and organization within our own borders.

The impetus given to postgraduate education in this country by the European war will be tremendous. Foreign centers of education will inevitably lose prestige. The tide will turn so that we may be the recipients of the European student as we are now of the European laborer.

Let us at once set to work and organize ourselves for this task and give to American physicians practical postgraduate work in *our own* language and with our own *trade-mark*.

HUGH PAYNE GREELEY, Boston.

Traffic Officers' Neuroses

To the Editor:—In looking over medical literature for the past ten years, I can find no records of any trouble with the traffic officer which may be due directly to his occupation. Within the last year a few cases came under my observation, and I will only refer to them here preliminary to a more complete report in the future. It would be interesting to know if men in other cities have observed symptoms similar to those I mention here. This being an age of prevention rather than cure, I believe we may possibly do something for the poor traffic officer who stands on a dusty, busy corner all day long blowing an "ear-splitting," mouth-irritating, and if I may use a harsher term, "saliva-slobbering" whistle. The symptoms reported here usually disappear after the first six months of the officer's duty, with the exception of the chronic bronchitis and tendency to deafness. The syndrome which was uniformly present in the few patients who have consulted me so far is as follows:

Pain in the sternomastoids and soreness in the masseter muscles; also pains radiating to the shoulder via the trapezii, and soreness in the epigastrium, noticed particularly on pressure or when the patient sits down. There was tinnitus aurium and slight deafness. There was ptyalism and mild parotitis, but I could elicit no crepitus in the parotids such as we find in glass-blower's or musician's disease. There was pharyngitis, bronchitis and cough in the morning. All complained of intense hunger, stating that they had to eat five or six times a day. As to the etiology of the foregoing symptoms, I will say without hesitation that the whistle is either directly or indirectly responsible. I believe the pains radiating to the shoulders and back of the neck by way of the trapezii are due to the fact that the officer takes a sudden inhalation before blowing so many times a day, always bringing these muscles into play. The pain in the masseters is due to the officer developing a habit of holding the whistle between his teeth between times.

So far I have found soreness in the epigastrium only in stout men, which I think is due to sudden jarring of the stomach when blowing the whistle. The ptyalism and mild parotitis I think is chiefly due to the parotids and other salivary glands being constantly stimulated by the metal whistle. The tinnitus aurium and slight deafness is probably due to the officer ballooning the ear-drums and eustachian tubes so often during the day, and also to noise. One man, who had been on the force on a prominent corner for seven years, complained of gradual and progressive deafness.

The irritated mouth is directly due to the whistle, and who knows, as those men get older, but that a more malignant trouble may develop? I mean epithelioma of the lip. The bronchitis is due to sudden inhalations of dust particles directly into the bronchi with the mouth open just before the officer blows the whistle.

The hunger is probably due to the ptyalism, and also of course to the officer being in the fresh air.

I will state here that those who have consulted me so far declare that they never had any of those troubles before they became traffic officers, and on resting and withdrawing the whistle for a few days most of the symptoms disappeared.

A. J. CAFFREY, M.D., Milwaukee, Wis.

Crotalin in Epilepsy

To the Editor:—The concluding paragraphs of the article on "Crotalin in Epilepsy," by C. L. Jenkins and A. S. Pendleton (THE JOURNAL, Nov. 14, 1914, p. 1749), indicate that the convulsions of epileptics are increased by its use and that it has no beneficial effect on the mental condition of the patient. In spite of this, and in spite of the dangers pointed out by Anderson and others, the wording of the authors might be interpreted to mean that they condone or perhaps even invite its use because it satisfies "the abnormal craving for medicine which all epileptics have." I feel certain that this was not their intention, and that they really wished to explain that any apparent benefits are due simply to the psychic effects of "doing something"; but unless they state their position more clearly, it may be feared that it will lead to the uncritical use of crotalin and to the haphazard, ill-considered use of medicine in general. C. W. STONE, M.D., Cleveland.

[This letter was referred to the authors who replied:]

To the Editor:—In reply to the comment regarding our paper on "Crotalin in Epilepsy," we wish to say in no uncertain terms that it was not our purpose either to condone or to invite the use of this substance.

The sentence criticized was added to account for the apparently good effects occasionally seen in the beginning of its use in certain isolated cases.

In our experiments we believe that a sufficiently large number of cases were treated over a sufficiently long period to eliminate possible sources of error, and our conclusions as stated were that the drug did harm and, so far as we could determine, no good. The sentence was added as a warning to those who might imagine that they were obtaining good results in the beginning of treatment.

C. L. JENKINS, M.D., and A. S. PENDLETON, M.D.,
Raleigh, N. C.

The New Conception of the Family Physician.—While I realize that it is the ultimate aim of public hygiene to make the physician in the sense of a pill peddler superfluous, I appreciate equally well that he will be all the more needed to practice medicine in the modern sense of the word. . . . But where is the field of the general practitioner, I hear some ask. He is the family adviser as he has been in the past but on a more scientific basis—he is the family health adviser if not the family physician and his relation to each of "his families" is even more sacred than in the days of old. He is expected to keep the baby well, not merely to give it medicine when ill; he is called in to examine the children of school age from time to time and to give advice as to their work and play; he is asked to pass on the health of the youthful son and daughter and find out why this loss of weight or want of appetite, and he must keep track of father and mother to see that they do not work and worry so much that their health may be impaired or their lives shortened.—Guy L. Kiefer, *Jour. Mich. State Med. Soc.*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HAND LOTIONS AND CHAPPED HANDS

To the Editor:—Please furnish me a formula for a hand lotion to be used in offices where it is necessary to wash frequently. I do not mean an antiseptic, but something to prevent chapping and irritation of the skin.

R. S. Goux, M.D., Detroit.

Answer.—Hand lotions are generally of two types: (1) glycerin solutions of the glycerin, rose water and benzoin kind, and (2) gelatinous liquids made with tragacanth, quince seed, or some other water-soluble colloid. The glycerin lotions work well with some skins and are the most satisfactory to an occasional individual, but as a rule they are not the best, first, because the glycerin tends to make drier a skin already too dry, and, second, because these lotions have little or no detergent effect and do not clean the skin.

The tragacanth and quince seed lotions are better, and of these the tragacanth lotions are certainly as good as any other and are very cheap and easy to make. A formula for such a lotion given by Pusey is as follows:

Tragacanth	gr. 80
Glycerin	ʒ ss
Boric acid	ʒ ss
Water q. s.	Oi
Oil of bergamot	♏ iv
Oil of lavender	♏ ii
Oil of rose	♏ i

The oils mentioned being added as a perfume might be omitted, one or all of them, according to the wish of the prescriber.

The boric acid, glycerin and waters are first mixed, the tragacanth added and the mixture agitated until the tragacanth is dissolved. This makes a rather thick mucilage; it can be changed to any consistency desired by slight increase or decrease in the amount of tragacanth.

A lotion like this has a considerable detergent effect; it is a tolerable substitute for soap, and if it is freely rubbed over the hands and wiped off, either with or without the use of water, cleans the skin of all but the most tenacious dirt. It, of course, cannot be effectually used as a complete substitute for soap. Such a lotion has the advantage over soap that it not only is not irritating to sensitive skin but also is bland and soothing. It thus tends to prevent and eventually to cure chapping of the hands.

The chief reason for chapping of the hands is the lack of fat in the skin in cold weather. Fat production in the skin is at a minimum in cold weather, because of the diminished sebaceous and sweat secretion. This and the dry air of winter make the skin dry and vulnerable at the very time when the cold air is itself irritating. This combination leads readily to chapping, if the hands must be exposed much to soap and water, and particularly if the irritation of antiseptics is added, as in the case of physicians and nurses.

The first thing to do to prevent or overcome the condition is to supply, by greasing the skin occasionally, the lacking fat in the skin. Almost any bland fat or semisolid hydrocarbon will do for this purpose, but nothing is better than a well-made cold cream. The next and the more difficult thing to do is to avoid soap and water—especially soap—as much as possible; and it is here that hand lotions serve a very useful purpose.

LITERATURE ON MENSTRUATION

To the Editor:—Please let me know of any small works there may be on the subject of menstruation.

D. A. S., M.D., Manitoba.

Answer.—The following is a list of references on this subject:

Jacobi, M.: Question of Rest for Women During Menstruation, G. P. Putnam's Sons, 27 West Twenty-Third Street, New York City, price, $2.

Gengenbach, F. P.: Precocious Menstruation, The Journal, Aug. 23, 1913, p. 563.

Galloway, D. H.: Unique Case of Vicarious Menstruation, The Journal, Nov. 22, 1913, p. 1897.

Dannreuther, W. T.: Corpus Luteum Organotherapy in Clinical Practice, The Journal, Jan. 31, 1914, p. 359.

Mosher, C. D.: Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with Menstrual Function, The Journal, April 25, 1914, p. 1297.

Chisholm, C.: Menstrual Molimina, *Jour. Obst. and Gynec. of Brit. Emp.*, May, 1913; abstr., The Journal, July 26, 1913, p. 309.

Hansen, T. B.: Premenstrual Rise in Temperature, *Beitr. z. Klin. d. Tuberk.*, 1913, xxvii, No. 3; abstr., The Journal, Sept. 13, 1913, p. 903.

Wiese, F. W.: Menstrual Rise in Temperature with Pulmonary Tuberculosis, *Beitr. z. Klin. d. Tuberk.*, 1913, xxvi, No. 4; abstr., The Journal, July 12, 1913, p. 154.

Passow, A.: Psychoses and Menstrual Disturbances, *Med. Klin.*, March 22, 1914; abstr., The Journal, April 25, 1914, p. 1367.

Driessen, L. F.: Necrobiotic Endometritis from Abnormal Menstruation, *Zentralbl. f. Gynäk.*, April 18, 1914; abstr., The Journal, May 23, 1914, p. 1700.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.

Illinois: Chicago, Jan. 13-15, 1915. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, Jan. 12-14, 1915. Sec., Dr. W. T. Gott, State House, Indianapolis.

Iowa: Des Moines, Jan. 19-21, 1915. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

Kentucky: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

Maryland: Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

Minnesota: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

Missouri: St. Louis, December 14-16. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.

New Mexico: Santa Fe, Jan. 11, 1915. Sec., Dr. W. E. Kaser, E. Las Vegas.

North Dakota: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 12-14, 1915. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence.

South Dakota: Pierre, Jan. 12, 1915. Sec. Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Vermont: Montpelier, Jan. 11-13, 1915. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Washington: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 12-14, 1915. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Idaho April Report

Dr. John F. Schmershall, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Wallace, April 7-8, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 15, of whom 13 passed and 2 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Colorado	(1912) 80; (1913) 84.5,	87
George Washington University	(1910)	89
College of P. and S., Chicago	(1902)	80
Jenner Medical College	(1897)	83
Northwestern University	(1909)	86.7
Rush Medical College	(1904)	83
University of Illinois	(1913)	89.9
University of Louisville	(1912)	82
University of Maryland	(1884)	88
Detroit College of Medicine	(1895)	86
Albany Medical College	(1910)	83
FAILED		
Ensworth Medical College	(1908)	73.7
Royal College of Surgeons, Edinburgh	(1910)	71

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
College of P. and S., Baltimore	(1903)	Utah
University of Toronto	(1892)	Utah

Georgia June Report

Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, reports the written examination held at Atlanta and Augusta, June 3-5, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 173, of whom 161 passed and 12 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College		(1913)	87
Medical College of Alabama		(1896)	82
University of Alabama		(1914)	94
Atlanta College of Phys. and Surg.		(1912)	86, 88
Atlanta Medical College (1914) 80, 80, 81, 81, 81, 82, 83, 83, 83, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 90, 90, 90, 90, 90, 90, 90, 90, 91, 91, 91, 91, 91, 91, 91, 91, 92, 92, 92, 92, 92, 92, 92, 92, 92, 92, 93, 93, 93, 93, 93, 93, 93, 93, 93, 93, 94, 94, 94, 95, 95, 96, 96.			
Atlanta School of Medicine		(1908) 80; (1910)	80
Georgia College of Eclectic Med. and Surg.		(1914) 80, 81, 81, 84	
University of Georgia (1912) 84; (1913) 86; (1914) 81, 84, 85, 86, 86, 86, 87, 88, 88, 89, 89, 90, 90, 92, 92, 93, 93, 94, 95.			
Bennett Medical College		(1912)	82
Chicago College of Med. and Surg.		(1913)	85, 85
Johns Hopkins University		(1913)	93
University of Maryland		(1913)	90
New York Homeo. Med. Coll. and Flower Hosp.		(1913)	87
North Carolina Medical College		(1905)	82
Medical Coll. of the State of S. C.		(1913)	90
Meharry Medical College		(1913) 80; (1914) 80, 80, 81,	83
Memphis Hospital Medical College		(1913)	82
Vanderbilt University		(1913)	87, 92
	FAILED		
Georgia College of Eclectic Med. and Surg. (1914) 65, 69, 71, 73, 73, 74.6, 75, 76.			
Southern College of Med. and Surg.		(1913)	74, 76
Knoxville Medical College		(1908)	71
Meharry Medical College		(1908)	70

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Kentucky University		(1904)	Kentucky
Johns Hopkins University		(1911)	Maryland
Maryland Medical College		(1908)	Maryland
Univ. of Michigan, Dept. Med. and Surg.		(1911)	Nebraska
University of Nebraska		(1912)	Nebraska
Eclectic Medical College, Cincinnati		(1913)	Missouri
Baylor University		(1913)	Maryland

Illinois June Report

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, June 23-25, 1914. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 229, of whom 163 passed and 63 failed. Three candidates did not complete the examination. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined
Bennett Medical College	(1913, 3) (1914, 11)		14
Chicago College of Med. and Surg.	(1913, 2) (1914, 39)		41
Hahnemann M. Coll. and Hosp., Chicago.	(1900, 1) (1914, 6)		7
Jenner Medical College		(1914)	2
Northwestern University		(1914)	19
Rush Medical College		(1914)	15
University of Illinois	(1912, 1) (1914, 57)		58
Central College of P. and S., Indianapolis		(1897)	1
Johns Hopkins University		(1914)	1
St. Louis University		(1914)	2
Fordham University		(1912)	1
Ohio-Miami Medical College		(1914)	1
Western Reserve University		(1914)	1
	FAILED		
Bennett Medical College	(1912, 1) (1913, 1) (1914, 6)		8
Chicago Coll. of M. and S.	(1909, 1) (1911, 1) (1914, 24)		26
Hahnemann Med. Coll. and Hosp., Chicago		(1914)	6
National Medical University, Chicago		(1909)	1
Northwestern University		(1914)	3
Reliance Medical College, Chicago		(1911)	1
Rush Medical College	(1911, 1) (1913, 1) (1914, 1)		3
University of Illinois		(1914)	8
Louisville and Hospital Med. Coll.		(1908)	1
American Medical College, St. Louis		(1914)	1
St. Louis University		(1914)	1
Meharry Medical College	(1908, 1) (1914, 3)		4

Iowa June Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 11-13, 1914. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 53, of whom 52 passed and 1 failed. Seventeen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College		(1914)	89, 90.1
Chicago Coll. of Med. and Surg. (1913) 89.6; (1914) 89.4, 92.7, 93.1, 93.4.			
College of Phys. and Surgs., Chicago		(1911)	91.6
Hahnemann Med. Coll. and Hosp., Chicago		(1911)	80.1
Northwestern University		(1911) 93; (1914) 86.1, 86.9,	91.6
Rush Medical College (1911) 92.1; (1912) 85; (1913) 86; (1914) 88.5, 89.9, 95.6.			
University of Illinois		(1914)	95.2
State University of Iowa, Coll. of Med. (1914) 85.5, 86.6, 88, 88.2, 88.7, 89.1, 89.4, 91.1, 91.1, 91.4, 92.5, 92.6, 92.9.			
University of Michigan, Dept. of Med. and Surg.		(1914)	87.4
American Medical College		(1914)	90.6
Barnes Medical College		(1899)	78
Ensworth Medical College		(1914)	87.5, 89
St. Louis University		(1913) 86.2; (1914)	87.7, 91.5
Washington University		(1914)	89.1
John A. Creighton Medical College		(1914) 86.1,	87.5, 88.1
Western Reserve University		(1914)	92.7
Jefferson Medical College		(1914)	84.6
University of Pennsylvania		(1909)	83.6
Woman's Medical College, Phila.		(1914)	84.9
Memphis Hosp. Med. Coll.		(1912)	89
Vanderbilt University		(1910)	81.5
Western University, Ontario		(1912)	82.2
	FAILED		
St. Louis College of Phys. and Surgs.		(1906)	70.2

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Med. and Surg.	(1910) Colorado;	(1913)	Missouri
Hahnemann Med. Coll. and Hosp., Chicago		(1912)	Indiana
College of Phys. and Surgs., Baltimore		(1912)	W. Virginia
American Medical College, St. Louis		(1908)	Missouri
Kansas City Hahnemann Medical College		(1912)	Kansas
St. Louis University		(1910)	Missouri
University Medical College, Kansas City		(1902) (1904)	Kansas
John A. Creighton Medical College		(1912) (1913)	Nebraska
Lincoln Medical College		(1902) (1904)	Nebraska
University of Nebraska		(1913)	Nebraska
Starling Medical College		(1898)	Ohio
Marquette University		(1913)	Wisconsin
Trinity Medical College, Toronto		(1894)	Michigan

Kansas June Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 9-11, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 24, all of whom passed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1914)	82
University of Kansas	(1914) 78, 81, 81, 82, 82, 82, 82, 83, 85,		85
Ensworth Medical College		(1914)	75
Kansas City Hahnemann Medical College (1914) 77, 79, 79, 79, 79, 81, 82, 85.			
University of Oklahoma		(1914) 82,	88
University of Pennsylvania		(1914)	81
Meharry Medical College		(1913)	75

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine		(1899)	Colorado
University of Colorado		(1897)	Missouri
Rush Medical College		(1912)	Illinois
Keokuk Medical College		(1900)	Ohio
Barnes Medical College		(1911)	Missouri
Kansas City Homeopathic Medical College		(1898)	Missouri
Kansas City Medical College		(1895) (1901)	Missouri
Univ. Med. Coll., Kansas City		(1901) (1906) (1912)	Missouri
Pulte Medical College		(1880)	Nebraska
Fort Worth School of Medicine		(1913)	Texas

Book Notices

Blood-Pressure: Its Clinical Applications. By George William Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania. Cloth. Price, $3 net. Pp. 372, with 99 illustrations. Philadelphia: Lea & Febiger, 1914.

The advance of medical knowledge and the more intimate correlations of experimental and clinical observations are evident in the books recently published on the subject of blood-pressure. The work of Norris is an attempt to exhibit this subject in a thorough manner with reference to its scientific relations. The facts of physiology are briefly given and these are followed by a thorough explanation of the methods of determining blood-pressure. Various instruments are described, the relative advantages of the different methods shown and some advice given as to the choice of an instrument. Venous and capillary pressure are discussed briefly as befits their minor clinical importance. Methods of determining functional efficiency of the circulation are described at considerable length. The rest of the book, comprising about one-half of the volume, is concerned with the clinical applications. Hypotension and hypertension are discussed. Here the author shows his conservatism in that he insists that neither of these conditions is per se an indication for therapeutic interference. Low blood-pressure may be a provision of nature for economy of energy and demands no treatment unless there is evidence of a progressive condition. Similarly, he insists that hypertension is an adjustment of nature which should not be interfered with directly, but changes should be effected by reaching the cause of the hypertension. "We must never thoughtlessly or ruthlessly interfere with Nature's delicately balanced mechanism of compensation. Only in the face of impending circulatory failure of vascular rupture or temporary pain is direct treatment indicated. . . . Just how much pressure lowering is possible and desirable must be determined for each individual case, and in no instance is such an effect to be sought merely by the administration of drugs." The hypotensive action of radio-active substances is briefly described. Chapter 14 gives an alphabetical list of remedies, drugs and glandular extracts, describing their effect on arterial tension and their therapeutic use. This list seems to be especially complete as it includes some drugs like mistletoe which are not described in ordinary books on pharmacology. Throughout the clinical part the discussion is conservative and judicial, while at the same time it exhibits an amount of research which inspires confidence in its reliability. We believe that this thoroughness and exactness, together with the practical treatment given various subjects, will secure for the present work a place in the first rank of treatises on this important subject.

The Cure of Alcoholism. By Austin O'Malley, M.D., Ph.D., LL.D. Cloth. Price, $1.25. Pp. 312. St. Louis: B. Herder, 1913.

The subject of alcoholism is viewed by the author from a broad point of view more as a moral and religious defect than as a purely physical ailment. Hence, he insists that the cure of alcoholism can be achieved only by the cultivation of the virtues, of which sobriety is only one manifestation which cannot be expected to exist alone.

Only a small part of the book is devoted to the medical aspects of the subject. The physiology and pathology are given more with reference to the instruction of lay readers than to physicians. A large space is given to the discussion of the relations of alcoholism to heredity and alcoholic imbecility. The physical treatment of alcoholism is considered in Chapter 5 and is in accord with the best modern treatment. The rest of the book is given to religious and theologic discussions which take a somewhat wider range than the mere consideration of drunkenness. The author seems liable to occasional, rather sudden, digressions. For instance: In the chapter on the ethics of drunkenness, several pages are given to the description of poisonous serpents and the treatment of snake poisoning in which other measures are recommended, but not alcohol. The author discusses moral means for the cure applicable to non-religious or non-Catholic individuals and the supernatural control of intemperance in which the cooperation of religion is discussed. An appendix is devoted to the subject of opium and other drugs. While not all readers may be disposed to agree with the author's theology, a perusal of this book cannot help but call attention to phases of the treatment of alcoholism which are apt to be much neglected.

Nutrition. A Guide to Food and Dieting. By Charles E. Sohn, F.I.C., F.C.S. Cloth. Price, $1.25. Pp. 256, with illustrations. New York: E. B. Treat & Co., 1914.

This book appears to be intended as an elementary treatise on dietetics. The author seems to be strongly impressed with the danger in the United Kingdom from the prevalence of dyspepsia. He states that it is calculated that there are in the United Kingdom at least 8,000,000 persons suffering from dyspepsia in some shape or form. This is a strange admission in view of the frequent characterization by English writers of the United States as a nation of dyspeptics. The statement of facts in the book is in general correct and clear. Ventilation is discussed from the point of view of the contamination of air by products of respiration. In this section the author seems to have taken no notice of modern teaching with regard to the nature of foul air. The book seems to be quite free from any tendency toward fads and there is no evidence of the influence of proprietary interests. The author notices the standard of protein requirement advocated by Chittenden but does not favor its adoption. The consideration of alcohol is apparently entirely favorable to its use as a food. The book contains a large amount of valuable information and, while it is not complete as a medical text-book on dietetics, it would be of great value for the use of intelligent laymen.

The Problem of the Nations. A Study in the Causes, Symptoms and Effects of Sexual Disease and the Education of the Individual Therein. By A. Corbett-Smith, M.A., F.R.G.S. Cloth. Price, $1 net. Pp. 107. New York: Paul B. Hoeber, 1914.

This is an English publication embracing a study of the causes, symptoms and effects of sexual disease and the necessity of the education of the individual therein. As the author states in his introduction, it is not intended as a scientific research but is an effort to place before the lay reader a plain straightforward account of the dangers of venereal infections. The fact that the writer is a lawyer and not a physician really increases the strength of the appeal, while the facts are presented in an entirely different manner from any of our American publications in this field. The facts themselves are naturally very much the same. Probably the method of presentation will make more of an impression on young men than anything which American writers have evolved. It is written specially for the young man beyond the schoolboy age. The style is plain, straightforward and thoroughly manly throughout without any moralizing, unnecessary sentimentality or undue appeal to fear. The writer knows the class to whom he appeals and his book is more like a personal, free conversation or letter than like a moral pamphlet.

I. K. Therapy with Special Reference to Tuberculosis. By W. E. M. Armstrong, M.A., M.D., Bacteriologist to the Central London Ophthalmic Hospital. Cloth. Price, $1.50 net. Pp. 83. New York: Paul B. Hoeber, 1914.

The paucity of references to I. K. in the literature of the past three years would seem to justify the conclusion that Spengler's method had failed to make good. The sporadic appearance of a few articles from American authors seems to have aroused no general interest. The method seems to have been imported into England, and the present work represents an effort to popularize it in that country. The author takes the part of an advocate. Considerable space is given to an exposition of the well-known principles of immunity. When special reference is made to I. K. he seems to be content with assertion merely. No proof is given of the statements of Spengler. It is assumed as a fact that the red blood-cells contain the bulk of the immunizing substances in the tissues of immune animals. The clinical results are detailed without a hint that any unfavorable results have

been obtained. There is no notice of the controversy which has occurred regarding this treatment or of the published statements of its worthlessness. The author gives a bibliography which includes a number of authors who have given unfavorable reports, but nothing is said of their reports. The book must be regarded as non-critical and chiefly useful as giving an idea of the theory and method of Spengler which could be given for intelligent medical men in much less space.

ROSE AND CARLESS'S MANUAL OF SURGERY FOR STUDENTS AND PRACTITIONERS. Ninth edition. Revised by Albert Carless, M.B., M.S., F.R.C.S., Professor of Surgery, King's College Hospital, London. Cloth. Price, $6 net. Pp. 1408, with 609 illustrations. New York: William Wood & Co., 1914.

The eighth edition of this book appeared in 1911, and as the author states, the three years since have not been characterized by any revolutionary or wonder-working novelty. However, "salvarsan and radium in particular may be mentioned as subjects to the consideration of which a vast amount of work has been devoted. Salvarsan stands as the conqueror of the worst ill effects of syphilis, if only it be employed in time; radium has proved itself a potent agent for good in many cases, but the magniloquent prophets who hailed it as the victor of cancer have not yet proved their claims." A new chapter is added on the use of heat, light, electricity and radium, as well as new illustrations and colored plates. The book is printed on thin paper, making the volume light in weight and convenient for handling. The author adds a personal note by saying:

"I trust that this edition may prove even more helpful than those which have preceded it, and pray that when the tenth edition is required the sounds of war strife, which boom on the ear as these lines are penned, may long have ceased, and that a righteous peace leading to a happy competition of race with race in the effort to promote, not the destruction, but the welfare of mankind of all nationalities may have been established."

Let us hope with him that not too long a period passes before the tenth edition appears.

TROPICAL DISEASES. A Manual of the Diseases of Warm Climates. By Sir Patrick Manson, G.C.M.G; M.D., LL.D., Lecturer in the London School of Tropical Medicine. Fifth edition. Cloth. Price, $5 net. Pp. 937, with 255 illustrations. New York: Williaim Wood & Co., 1914.

The fourth edition of this work appeared in 1907. Since that time great advances have occurred in the field of tropical medicine, relating to beriberi, yaws, verruga, sleeping-sickness and pellagra. In the preface the author states that while tropical pathology has been actively and successfully studied, prevention and treatment of tropical diseases have also not been neglected; such newer investigations of a practical nature are also included in the new edition. A few which are mentioned for example are the treatment of yaws and relapsing fever by salvarsan, the treatment of trypanosomiasis by antimony, and perhaps the most important of all, the substitution of emetin for ipecac in the diagnosis and treatment of amebiasis. The work is full of valuable illustrations, including colored plates and instructive charts. The parasites and various flies which act as carriers are fully illustrated. American and English surgeons and physicians whose work carries them into these tropical zones, as well as those men of broad knowledge who follow the entire field of medicine, know the valuable nature of this work.

LIFE AND LAW. The Development and Exercise of the Sex Function, Together with a Study of the Effect of Certain Natural and Human Laws and a Consideration of the Hygiene of Sex. By Maude Glasgow, M.D. Cloth. Price, $1.25 net. Pp. 194. New York: G. P. Putnam's Sons, 1914.

This is another of the numerous books recently written for women on sex and its various problems. The point of view of the writer is that of a moderate feminist. The attitude of the writer can best be illustrated by a quotation from Chapter 12, in which the development of women and her social and legal status is under discussion: "Even as late as the present century a male writer declared that 'the function of reproduction alone excused or explained woman's existence.' The writer to whom reference has been made apparently was not aware that biologic research had shown that it was the male sex that was created solely to save the race and as an afterthought of nature." While the book gains some novelty on account of this point of view and is worth reading by the careful student of present-day problems, it does not contain any original material or anything that is a special contribution to the discussion.

INFECTION AND RESISTANCE. An Exposition of the Biologic Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By Hans Zinsser, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, New York, with a Chapter on Colloids and Colloidal Reactions by Prof. Stewart W. Young. Cloth. Price, $3.50 net. Pp. 546. New York: The Macmillan Company, 1914.

The practical importance of the subject of immunity, in both the prophylaxis and the treatment of disease, is calling forth a number of excellent works on the subject. The present book must be reckoned among the best of those that have appeared for the use of the physician. The study of the subject is both thorough and practical. The method of vaccine therapy is discussed and in many cases the evidence for the value of this method of treatment is given at some length. The book, however, does not quite take the place of a comprehensive work on vaccine therapy. In addition to the discussion of the subject of anaphylaxis, supplementary chapters are given on Abderhalden's work on protective ferments and on colloids. The statement of facts in general is concise and clear. The book is well illustrated with drawings, several of which are colored.

THE NEXT GENERATION. A Study in the Physiology of Inheritance. By Frances Gulick Jewett. Cloth. Price, 75 cents. Pp. 236, with illustrations. Boston: Ginn & Co., 1914.

This is one of the Gulick Hygiene series. Its dedication to boys and girls, the guardians of the next generation, as well as the specific statement of the author in the introduction that the purpose of the book is to let young people know the perils which threaten them and how to avoid them, place the book in the rapidly growing group of publications for the sex education of boys and girls. Mrs. Jewett's antecedents, training and experience have given her an unusual equipment for such a task. This book is perhaps from a constructive point of view the best prepared of any of the recent publications in this field. It is well illustrated, unusually well printed and should prove a valuable addition to the series to which it belongs.

A MANUAL OF PHYSIOLOGY WITH PRACTICAL EXERCISES. By G. N. Stewart, M.A., D.Sc., M.D., Professor of Experimental Medicine in Western Reserve University. Seventh edition. Cloth. Price $4 net. Pp. 1132, with 467 illustrations. New York: William Wood & Co., 1914.

The period of use represented—from 1896 on—has shown that Stewart's text-book may be depended on to keep pace with modern advances in this particular field. The seventh edition has been extensively revised. The chapter on metabolism has been enlarged and much of it rewritten. Great changes have been made in those portions devoted to the blood-gases, enzymes, nervous system, etc. A change in arrangement is made by dividing the longer chapters into sections and increasing the number of chapters. Many new illustrations and new drawings of old illustrations add in the improvement of an already good work.

A TEXT-BOOK OF PATHOLOGY. With a Final Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, and T. Mitchell Prudden, M.D., LL.D., Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University. Tenth edition. Revised with the cooperation of Francis Carter Wood, M.D., Director of Cancer Research, Columbia University. Cloth. Price, $6 net. Pp. 1116, with 708 illustrations. New York: William Wood & Co., 1914.

The latest issue of this well-known book embodies recent advances in pathology. It quotes numerous references from recent literature and in its illustrations and arrangement maintains the excellent standard of previous editions.

Miscellany

Source and Supply of Drugs

We have previously commented on the likelihood of a shortage in drugs and the consequent increase in prices to be expected as a natural outcome of the European war. In *Public Health Reports* for October 9, Wilbert says that probably the chief reason for the rapid rise in prices was the fact that the available stocks of many of the staple articles during the summer months are usually at a rather low level, and that practically all of the great drug markets of the world are in the war zone, so that stocks on hand in these ports are not available for shipment. By far the greater number of drugs sold throughout the world are marketed via London, Hamburg or Trieste. A few products of the Dutch colonies are sold through Amsterdam, and some of the drugs produced in Turkey and Western Asia come directly from Constantinople. Many vegetable drugs deteriorate on keeping. These, known as botanicals, are usually kept on hand only in small quantities, and supplies are not kept over from year to year. The greatest difficulty in securing supplies of drugs during the coming year, however, will no doubt be encountered, Wilbert thinks, in connection with the so-called "synthetics." Practically from its beginning this business has been monopolized by European manufacturers. Even the simplest drugs, like benzol, anilin oil, phenol (carbolic acid), salicylic acid and benzoic acid, are produced almost exclusively in Europe. Benzoic acid is being quoted at ten times the price at which it could be purchased a month before the war. Salicylic acid is five times higher, and phenol ten times the price asked before hostilities began. Another example of this type is thymol. This article was quoted in July at approximately $2 per pound, while in October $15 a pound is asked, and the available stock is practically exhausted. This is true despite the fact that in this country there are unlimited amounts of the raw material. Much domestic coal-tar was previously sent to Europe to be there manufactured into numerous products, which were sent back to America with enhanced value. Farmer's Bulletin 188, entitled "Weeds Used in Medicine," contains illustrations of a number of drug plants and the necessary directions for gathering and curing many of the drugs which are now scarce. This pamphlet may be obtained by addressing the Superintendent of Documents, Washington, D. C. Needless to state, many of the alkaloids, such as cocain, morphin and quinin, will be widely used in the countries now at war, and the increased demand will result in higher prices. It is to be hoped, says Wilbert, that this particular burden of the war may have a remedying feature in that it will teach us to exercise greater care in the use of these commodities, will tend to encourage their production in this country, and will suggest the practicability of establishing for ourselves, and for the American community generally, a distributing center for the drug products of the world that will be independent of the now existing drug depots in European ports.

Treatment of Diabetes Fifty Years Ago

It is interesting occasionally to "hark back" and see behind the scenes fifty years ago. Occasionally such opportunities are offered in letters that were written "not for publication." Dr. R. L. Wilbur of San Francisco forwards us a copy of a letter written to his father by Dr. A. B. Palmer, a member of the Medical Department of the University of Michigan. Dr. Palmer held various positions in that university; according to our records he was professor of anatomy in 1852-1854; of materia medica, therapeutics and diseases of women and children, 1854-1860; of the theory and practice of medicine, pathology and materia medica, 1860-1861; of the theory and practice of medicine, and of pathology, 1861-1864; of pathology, the practice of medicine and of hygiene, 1864-1869; of pathology and the practice of medicine, 1869-1880, and of pathology and the practice of medicine and clinical medicine, 1880-1887. Dr. Palmer was a graduate of the College of Physicians and Surgeons of the Western District of New York in 1839, and died Dec. 23, 1887.

Dr. Vaughan, in a communication to the editor, states that Dr. Palmer, in his time, was a strong man in the profession, a thorough student, and availed himself of every opportunity to increase the width and scope of his professional knowledge, and that he was a great teacher, and always stood for the best in the profession.

Following is the letter:

D. L. Wilbur, Esq.

Dear Sir:—Your letter is at hand asking advice about your brother, who you say is affected with diabetes. It is always very unsatisfactory to treat a patient without seeing him, and you are not very full in your description of the case. I assume, however, that he has diabetes, passes a very large quantity of urine loaded with sugar, etc., and that there is no particular complication requiring attention. The disease, you are aware, is a very severe one, often—I may say generally—proving fatal sooner or later, and very soon in rapid and severe cases. The pathology and treatment (medicinal) is not as well established as in most other diseases, but the dietetic treatment is most important and is pretty well settled. The patient must avoid sugar and starchy foods as much as possible. All forms of sugar must be discarded entirely and bread, potatoes and fruit containing starch and sugar must be avoided as much as possible. He should live on fresh meat, eggs, soups, cheese (if it agrees), butter. Milk contains sugar, and much of it would be objectionable on that account.

Some persons cloy on these articles readily and need something in addition. The following kind of bran bread may be taken with the meat diet; Put 1 pound of bran in an oven, hot, for one-fourth hour; when warm and crisp grind in a fine coffee mill or pepper mill; mix with it half a pound of butter and the yolks of six eggs, 1 teaspoonful of bicarbonate of soda, and milk enough to make into a paste. Divide into cakes and bake in a quick oven. These cakes may be taken with butter or cheese.

Or another: 3 ounces of bran, 3 eggs, 1½ ounces of butter, 7 fluid-ounces of milk. Mix for a loaf. Just before putting it into the oven, add, mixing in with it, 35 grains of bicarbonate of soda and 3 drams of dilute hydrochloric acid. Bake in a basin well buttered for an hour or more. One of these kinds of bread to be used with the meat in place of ordinary bread or potatoes. There would be no objection to occasionally taking some tomatoes, or greens in the proper season. If vegetable substances be much craved for and the stomach seems suffering for them, a baked apple may be taken once in a few days. The skin should be kept warm, well clothed (flannel), and the warm bath—or quite as well warm sponge bath—should frequently be practiced. Must not remain in a warm bath too long as it debilitates—10 minutes or more—friction of skin after. The hot air baths with frictions agree better with some.

In the way of medicine I would advise that 30 grains of bicarbonate of soda be taken four times a day, as far as may be from the time of meals—say an hour or more before breakfast, an hour and a half before dinner, the same time before supper, and at bedtime. If very restless, an opiate may be taken at bedtime, and the bowels kept open by the mildest means if necessary. If much debility some tonic may be needed, as moderate doses of quinin and iron before each meal. This general plan is applicable to most cases. If there are special symptoms or complications, special methods of treatment would be indicated besides. This is the best that I can advise without more precise knowledge of the case. A moderate use of buttermilk occasionally might be indulged. The diet is most important and must be persisted in. I have known some cases apparently much benefited by using working cider. A variety of meats may be indulged—beef, poultry, venison and fish as well. It would be best perhaps to put this letter into the hands of some physician—as I suppose he has some attendant—to carry out. Should he find it convenient to visit me I could be more sure of adapting remedies properly to his case. I have been thus full in my directions as the case is one of great importance, and you would not have written me, had you not wished me to give it all the attention necessary, expressing myself as fully as I profitably could.

I would like to hear from you again as to results, etc. My usual fee for a professional letter on an unusual case of this kind—varying with the means of the patient—is from five to fifteen dollars. About ten dollars in this case would be right. Should you write me again about the case I will answer your letter briefly, if necessary, without additional fee.

Yours truly,

A. B. Palmer.

Ann Arbor, Nov. 2, 1865.

Kala-Azar in Madrid

Del Diestro reports what he says is the first case of kala-azar published in Madrid. The patient is a boy of 14 months, of healthy parents and antecedents. The family is living now in a healthy third-floor apartment but until the last three months they lived in a cottage with many trees in an unhygienic quarter. He comments on the unusual circumstance of kala-azar developing so far inland and at an altitude of nearly 2,000 feet and in a child who has always lived there and has not been in known contact with persons or animals who could have imported the disease, but there is a suspicious case of febrile splenomegaly in a child near the family's former home. His illustrated article is published in the *Revista Clinica de Madrid*, Sept. 30, 1914.

Medicolegal

Unlawful Prescribing and Sale of Morphin—Validity of Indictment and Statute—"Legitimate Use"

(Commonwealth vs. Gabhart (Ky.), 169 S. W. R. 514)

The Court of Appeals of Kentucky reverses a judgment which sustained a demurrer to an indictment that charged the defendant, a regularly licensed and practicing physician, with unlawfully prescribing for, procuring for, selling and dispensing morphin to another person for purpose other than legitimate use. The indictment was found under the act of 1912, entitled "An act to regulate the sale of opium or its alkaloidal salts, or their derivatives or any admixture thereof." The court says that the demurrer to the indictment was sustained on the ground that the facts therein alleged failed to charge an offense under the statute. This conclusion was based on the theory that, as the indictment failed to charge that the morphin prescribed for and sold the purchaser by the defendant was an alkaloid or derivative of opium or an admixture containing opium, and that the court could not judicially know or say that such was its character, that omission rendered the indictment fatally defective.

While, however, morphin is not named in the statute as an alkaloid, derivative, or admixture of opium, the court does not suppose there is a person of ordinary intelligence or common understanding residing in the state but has familiar knowledge of its power as a narcotic, its deadly effect as a poison, and that it is an alkaloid or derivative of opium. The word "morphin" has as well-defined a meaning as the word "whisky," and its qualities and effect are as well known to the generality of the people of the state as are those of the intoxicant known as "whisky," and manifestly it would be a work of supererogation to allege in an indictment charging one with the unlawful sale of whisky that it is a spirituous liquor or intoxicant. The validity of the indictment was not affected by its failure to state that the morphin sold by the defendant under the circumstances therein alleged was an alkaloid or derivative of opium.

Nor does the court agree with the contention that the failure of the statute to define the words "legitimate use" renders it void for uncertainty. The word "legitimate," in the statute, is not used in its original sense of lawful, but in its secondary sense of proper or warranted, as when we speak of a "legitimate conclusion" or a "legitimate argument." Morphin is sold for legitimate purposes under the statute when, under the facts, a druggist or physician, acting according to the ordinary usage of the profession and exercising ordinary care, would have made the sale. This is a question for the jury. If, on the trial, the defendant makes the defense that the sale of morphin with which he is charged in the indictment was made for a legitimate use, it will be competent for him to show by the evidence of physicians or druggists that the use for which he sold the morphin to the purchaser was a legitimate one. On the other hand, the commonwealth may also introduce evidence to show that the use was not a legitimate one. After that, the court should instruct the jury so as to enable them to determine whether or not the sale was for a legitimate use as contemplated by the statute.

Provision as to Funds of Board of Medical Examiners

(Kenehan, State Treasurer, vs. Barber et al., State Board of Medical Examiners (Colo.), 143 Pac. R. 370)

The Supreme Court of Colorado says that it would seem that the clear intent of the statute of that state is that the board of medical examiners shall deposit all its receipts with the state treasurer at the end of each month, and that it may withdraw from the treasury such sums as may be necessary to meet its fixed obligations, either contracted or performed, within a given biennial period, but that its financial affairs must be closed at the end of each of such periods, as in the case of other state officers, so that the definite amount, if any, which shall then become the property of the state may be determined and transferred to the state fund. It is clearly within the power and authority of the board to determine absolutely the question of expenditure of the funds arising within the lawful discharge of its duties, except only that, in case of any balance remaining in the custody of the treasurer at the close of any biennial period, such balance shall be transferred to the general fund of the state, and become the property of the state at that time. Clearly the board may not withdraw such funds at a time near the close of one biennial period for the purpose of again depositing the same during a succeeding biennial period to defray expenses and obligations occurring in and during such succeeding period. But the treasurer has no other power or authority in this respect than to make the transfer of such funds, and only such funds, as shall appear to be in his custody at the close of a biennial period. He is not given any authority or power to review in any manner or pass on any of the official acts of the board. The statute confers on the board exclusive powers, not only in this matter, but in all others covered by the statute creating the board of medical examiners. The members of this board are made public officials, and must be presumed to have discharged their duties honestly and within the scope of their authority. That the board may have exceeded its powers or abused its discretion, or may have wilfully violated the law and abused the trust imposed, and in so doing may have deprived the state of a sum rightfully belonging to it under the law, is not a matter for the arbitrary determination of the state treasurer, to be disposed of by an entry on his books. The members of the board are answerable for their official conduct to the chief executive of the state, and their civil or criminal liability is a question for judicial determination, on a full and complete hearing in the light of the law and the facts.

Federal Court Without Power to Order Physical Examination

(Bruce et al. vs. Central Railroad Co. (U. S.), 216 Fed. R. 718)

The United States District Court in Pennsylvania says that this was a common-law action to recover damages for alleged injuries sustained by a passenger on one of the defendant's trains. It was claimed that he had suffered a fracture of the skull, resulting in permanent injuries to his brain and mind. On a refusal to have him examined by disinterested physicians to determine the state of his mind and the extent of the injury, the defendant sought to have such an examination ordered under the direction of the court. But such an action is subject to the local law concerning matters of evidence. No power to make an order for the examination of the person of the plaintiff in a case like this is to be found at common law; hence in the absence of a state law the power does not exist. The question has been variously decided in the lower courts of Pennsylvania, but it nowhere appears that it has been considered by the state supreme court. And while the decision of the Supreme Court of the United States in the Botsford Case, 141 U. S. 250, has been slightly modified by the court in the later case of Camden Sub. Ry. Co. vs. Stetson, 177 U. S. 172, in holding that a statute enacted by the state of New Jersey regulating the practice should be enforced, it still remains that short of statutory authority the courts are powerless. Wherefore the order asked for is denied.

Physicians May Testify as to Usual Effect of Nervous Shock—Test of Admissibility of Opinion Evidence

(State vs. Wilson (W. Va.), 83 S. E. R. 44)

The Supreme Court of Appeals of West Virginia holds that the testimony of physicians as experts concerning the usual and ordinary effect of the severe nervous shock incident to a rape committed on a woman, the manifestations thereof, and their duration, as bearing on her credibility as a witness and the truth of her accusations, is admissible; but, it is not in character exclusively expert, the rejection thereof is harmless error. The test of the admissibility of opinion evidence, whether expert or non-expert, is the competency or incompetency of unskilled men, constituting a jury, to form as

accurate and reliable an opinion on the subject-matter of the testimony as persons having special knowledge of the subject, from their learning, professions, and experience, or their possession of such knowledge of the subject-matter as it is impossible fully and completely to communicate to the jury. Physicians are students of human anatomy, and of the qualities, characteristics, and functions of the human body and all of its parts. Their knowledge of the nervous system, its functions, strength, weakness, and the effect of influence thereon of any character is obviously more extensive and reliable than that of persons who have never studied or had occasion to observe them, in the pursuit of their vocations. Physicians come in contact with them and have them under observation almost daily. Of course, non-experts, such as men constituting a jury, would have some knowledge of the subject, and know that a shock to the nervous system would produce effect; but their knowledge as to its forms, extent, and duration is certainly not as full and complete as that of a physician of recognized ability, and the litigant is entitled to submit to the jury all the relevant material evidence he has. In the cases of non-expert witnesses, they are allowed to express their opinions on the subject-matter of their evidence when they cannot put the jury in full and complete possession of all they observed, even though they are able to lay before the jury the substance of their observations.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

SOUTHERN MEDICAL ASSOCIATION

Eighth Annual Meeting, held at Richmond, Va., Nov. 9-12, 1914

(*Concluded from page 2069*)

Treatment of Syphilis

DR. E. H. MARTIN, Hot Springs, Ark.: Apart from idiosyncrasy to the drug in a few cases, a dose of salvarsan has no physiologic effect on the body temperature or intestinal elimination. Therefore we must judge that the disturbances consistently observed after its administration are due to endotoxins released from the killed organisms causing the disease. If there are many bowel movements, there is not much rise in temperature, and the converse is also true. Nausea and emesis are probably drug effects and seem to be dependent on personal idiosyncrasy.

The cure of a majority of cases of secondary syphilis may be accomplished by three intravenous doses of salvarsan. Some secondary cases have been fully sterilized of the spirochetes by one dose, as proved later by genuine reinfections; many secondary cases are cured by two doses, but to be safe three doses should be given in all cases, and if the slightest endotoxin reaction occurs after the third dose the weekly doses should be continued until it is lacking. The fact that more than three doses are frequently necessary in secondary syphilis can be explained by the probable existence of tertiary colonies which have given no symptoms. The treatment of tertiary syphilis is the same as that of the secondary stage except that here we have to repeat the doses until all of the colonies are broken up and killed. Usually from five to seven doses suffice except in cases of cerebrospinal lues, which will be considered later. Some cases of bone syphilis require more treatment, and a few cases of old tertiary ulceration of the skin are peculiarly intractable. The treatment of the fourth class of cases, tertiary infection of the cerebrospinal system, does not differ from that of other cases of syphilis except as to the greater persistence required. The final results and the degree of restoration to health will depend on the extent of damage done by the disease to nerve or brain tissue before treatment is instituted. Nothing anatomic can be restored, nor can scar tissue be removed.

Treatment of Tabes Dorsalis and Specific Paresis

DR. ESTILL G. HOLLAND, Hot Springs, Ark.: I have had six cases of tabes dorsalis and paresis which were greatly improved by intravenous injections of salvarsan.

DISCUSSION

DR. E. G. BALLENGER, Atlanta, Ga.: I have given 2,975 injections, but I have not seen secondary or other manifestations of syphilis follow in those patients who were treated before the secondary manifestations had developed.

DR. J. K. HALL, Richmond, Va.: Syphilis ought not to be a genito-urinary disease or a disease that should come under the observation of the neurologist; it ought to be a disease for the general practitioner to discover and to treat early. In spite of the hopeful attitude of some observers, I am convinced that paresis is essentially an incurable disease.

DR. A. J. CROWELL, Charlotte, N. C.: I have used considerable salvarsanized serum in the treatment of paresis, and I think it is perfectly rational and scientific to employ this plan of treating syphilis.

Campaign Against Malaria

DR. L. O. HOWARD, Washington, D. C.: The advance of civilization has increased, rather than decreased, the spread of the disease, because of the construction of ponds and stone quarries, in the still water of which the mosquito has found a favorable breeding ground. The present prophylactic measures are too general to be standardized. There are 79,000,000 acres of swamp-land country, of which 65,000,000 are in the Southern states. In addition to this vast territory of swamp acreage, there are 150,000,000 acres that need drainage.

Effects of Impounded Water in the Production of Malaria

DR. H. R. CARTER, Washington, D. C.: The great increase in impounded water in the South has resulted in a corresponding increase of mosquitoes, which, however, can be avoided if the ponds and artificial lakes can be so constructed as to be drained or be cleared of surrounding brush so as to have wind and wave action. I should suggest that all such impounded waters be placed under the control of boards of health.

Malaria Carriers and the Important Rôle They Play in Persistence and Spread of Malaria

DR. C. C. BASS, New Orleans: Persons who are not ill and who have not been ill of malaria are the chief malaria carriers. Persons who have recovered from an attack of malaria frequently remain carriers for many months and, perhaps, years. The ideal way to deal with the situation would be to examine the blood of all persons in the house and treat the carriers. This will not be practicable in most instances, and the next best thing would be to consider all members of the household probable carriers and treat them as such. These measures carried out during the cold season are more successful because mosquitoes are not active at that time.

Malaria and Quinin

DR. THOMAS E. WRIGHT, Monroe, La.: I have treated thirty patients with malaria of the estivo-autumnal type, with quinin intravenously. The intravenous use of quinin, in doses of 15 grains, in a dilution of from 250 to 300 c.c. of saline solution, in the hands of a careful, competent physician, is safe. The discomfort to the patient is so slight that it becomes a matter of small importance, and in this respect, when compared with quinin by mouth or hypodermically, is much to be preferred. The relief from the symptoms in malaria, so often jeopardizing life, may be attained promptly, safely and constantly by this method.

Intestinal Parasites in Adults

DR. H. L. MCNEIL, Houston, Tex.: Indefinite and unexplained abdominal pains or tenderness should make one suspicious of intestinal parasites. Parasites should be sus-

pected in all cases of chronic or subacute appendicitis. Many apparently normal men, who harbor parasites, are subject to certain indefinite complaints, diagnosed usually as indigestion, cramps, biliousness, mild diarrhea, malaria, febricula, grip, which are really symptoms of the parasitic infections. An otherwise unexplained eosinophilia is good evidence of parasitic infection, even though the parasites are not discovered at the first stool examinations; but an absence of eosinophilia does not rule out parasitic infection.

The Public Health

DR. R. M. CUNNINGHAM, Birmingham, Ala.: All sanitary regulations among and between the states should be under the laws of the United States. Governmental direction and control is the only feasible method in which a proper regulation for the country at large can be evolved and put into execution. The federal government has jurisdiction over all matters ceded to it by the states, and all of these matters concern the common welfare. Public sentiment is necessary to procure proper laws, and to arouse public sentiment there must be education. Sanitary measures must be made political issues. So long as the people are silent, so long will the statesman fail to take the initiative. If there be a popular demand for sanitary laws, those running for office will make it one of the reasons for their election to office.

Heart Arhythmias

DR. E. C. THRASH, Atlanta, Ga.: The principal extracardial causes of arhythmia are cortical, toxic, mechanical, reflex from pathology in other organs, and vagopathic. The treatment of arhythmias is as varied as their causes. The treatment of the ones produced by factors external to the heart itself must be based on methods which will relieve these disturbances. The neurasthenic must be relieved of his neurasthenia, the sufferer from visceral ptosis must have his condition relieved, and the mechanical disturbances which interfere with the heart's action must be diagnosed and relieved, if possible. Atropin will not only temporarily relieve these functional disorders, but the fact that it does relieve them aids one in making a diagnosis, as this drug will not relieve those of extracardial origin, but will make them worse, as it has a slightly paralytic effect on the vagus. The lesions which are intracardial must be treated by directing the attention toward the heart itself. If there are any luetic complications they should be treated. It is erroneous not to give salvarsan in this form of syphilis. Arteriosclerosis, atheroma, calcareous infiltration and toxemias play an important rôle in producing the latter lesions and they should be treated according to classic methods for handling such conditions. Digitalis is the remedy *par excellence* to restore the heart to its normal tone, and it should never be overlooked in the treatment of organic arhythmias.

Habit as an Aid to Progress.—Students of Prof. H. S. Jennings' admirable work on the "Behaviour of the Lower Organisms" will remember that his experiments have led him to the conclusion that certain Protozoa, such as *Stentor*, are able to learn by experience how to make prompt and effective responses to certain stimuli; that after they have been stimulated in the same way a number of times they make the appropriate response at once without having to go through the whole process of trial and error by which it was first attained. In other words, they are able by practice to perform a given action with less expenditure of energy. Some modification of the protoplasm must take place which renders the performance of an act the easier the oftener it has been repeated. This same is of course true in the case of the higher animals, and we express the fact most simply by saying that the animal establishes habits. From the mechanistic point of view we might say that the use of the machine renders it more perfect and better adapted for its purpose. In the present state of our knowledge I think we cannot go beyond this, but we must content ourselves with recognizing the power of profiting by experience as a fundamental property of living protoplasm.—Arthur Dendy, *Medical Journal of Australia.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

November, XVII, No. 1, pp. 1-160

1 Comparative Distribution of Mitochondria in Spinal Ganglion Cells of Vertebrates. E. V. Cowdry, Baltimore.
2 Anatomy of 17.8 mm. Human Embryo. F. W. Thyng, Boston.
3 Stature and Eruption of Permanent Teeth of American, German-American and Filipino Children. R. B. Bean, New Orleans.

American Journal of Public Health, Boston

November, IV, No. 11, pp. 965-1126

4 Shellfish Conservation and Sewage Disposal. G. A. Johnson, Colorado Springs, Colo.
5 Germicidal Action of Sunlight on Bacterial Spores. J. Weinzirl, Seattle, Wash.
6 *Destruction of Bacteria Through Action of Light. C. B. Bazzoni, Philadelphia.
7 Antityphoid Vaccination. J. H. Townsend, Hartford, Conn.
8 Experimental Study of Relative Efficiencies of Certain Fermentation Tubes. R. E. Lee and W. H. Fegely, Meadville, Pa.
9 *Viability of Typhoid Bacillus in Sour Cream. C. Krumwiede, Jr., and W. C. Noble, New York.
10 *Ice Cream Studies in Cincinnati. C. Bahlman, Cincinnati.
11 Swimming Pool with Return Purification System. J. F. Norton, Boston.
12 Future of Milk Industry. F. E. Fronczak, Buffalo.
13 Influence of Financial Stimulus in Improvement of City Milk Supply. H. A. Harding, Chicago.
14 Municipal Versus Contract Street Cleaning in Washington, D. C. J. W. Paxton, Washington, D. C.
15 *Typhoid Epidemic—Centralia, Washington. E. R. Kelley, Seattle, and S. Macomber, Centralia, Wash.
16 Formaldehyd Fumigation. W. Dreyfus, New York.
17 Determination of Minute Quantities of Nitrates, Particularly in Potable Waters. A. H. Gill, Boston.
18 Inhibiting Action of Colored Well Water on Bacteria and Study of Inhibiting Effect of Some Inorganic Salts. E. J. Tully, Madison, Wis.
19 Referendum for Winnebago County Tuberculosis Hospital. O. F. Bradley, Winnebago, Wis.
20 Creating a Municipal Tuberculosis Sanitarium by Referendum. F. E. Wing, Chicago.
21 Seattle Referendum Appropriating One Hundred and Twenty-Five Thousand Dollars for Municipal Sanitarium. J. Weinzirl, Seattle, Wash.
22 Account of Referendum on Proposition to Establish Tuberculosis Hospital in and for County of St. Lawrence, New York State. G. J. Nelbach, New York.
23 Examination of River Bottoms at Philadelphia. W. L. Stevenson, Philadelphia.
24 Water Softening and Decolorization. W. A. Sperry, Grand Rapids, Mich.
25 Effect of Renovation of Butter on Reichert Meissl Number and Saponification Value. F. O. Tonney and F. W. Stockton, Chicago.
26 Decolorization of Little River Water Supply in Connection with Filtration at Springfield, Mass. E. E. Lochridge, Springfield, Mass.
27 Rational Basis for Sanitation of Rivers and Harbors. G. A. Soper, New York.
28 Effect of Waters of Different Quality on Longevity of some Pathogenic Bacteria. E. J. Tully, Madison, Wis.

6. **Destruction of Bacteria Through Action of Light.**—Bazzoni summarizes his work as follows: The full radiation of certain sources containing waves below 250 microns in length will kill bacteria certainly and rapidly. Isolated ultraviolet rays of length 250 to 280 microns will not affect bacteria in one drop of water in a four-hour exposure. Isolated ultraviolet rays as short as 220 to 250 microns will kill only after several hours exposure even when the isolated radiation is of the same intensity as that contained in the rapidly destructive full radiation. The destructive power increases rapidly with decrease in wave length. The final conclusion is that the destructive effect of ultraviolet light is in some measure dependent on its association with longer radiations.

9. **Viability of Typhoid Bacillus in Sour Cream.**—The results of Krumwiede and Noble's experiments were as follows: The typhoid bacillus is gradually killed in sour cream by the acids produced, the rate of destruction being proportional to the degree of acidity and the number of typhoid bacilli present. The apparent disappearance of typhoid bacilli in sour cream in which the normal flora are present

is due in part to the overgrowth of the typhoid bacillus by these bacteria and the difficulty of finding by their present methods the proportionately few typhoid bacilli remaining. With a moderate contamination, the typhoid bacilli are killed in about four days. With a heavy contamination or in which the initial multiplication has taken place, a longer time may be required. For this reason a clean cream which soured slowly would be more dangerous if contaminated, as an initial multiplication of the typhoid bacilli would occur and a longer time would be required to destroy the bacilli. Whether under ordinary conditions the overgrowth by the bacteria of the cream is a factor in the death of the typhoid bacilli cannot be determined by their present methods.

10. **Ice Cream Studies in Cincinnati.**—The bacterial content of ice cream is so high, says Bahlman, that studies of the cause are imperative. Cream is obviously the source of the great majority of bacteria found in ice cream. Proper pasteurization of the cream and enforcement of sanitary regulations, Bahlman claims, will reduce the bacterial count in ice cream. Pasteurization of the mixture just before freezing would bring about a still greater reduction. Pasteurized cream does not affect the taste of ice cream. Sanitation at the dairy must not be neglected, but proper refrigeration and transportation facilities in large cities are far from satisfactory. A perfect product at the source of supply may be teeming with bacteria by the time it reaches its destination, and under the present conditions pasteurization is the only remedy.

15. **Typhoid Epidemic.**—Certain striking features present themselves in relation to the epidemic studied by Kelley and Macomber which are sufficiently out of the ordinary to warrant calling particular attention to them. They are: (a) Coincidence of practically complete cessation of new cases at the end of average incubation period, following the installation of the hypochlorite plant. (b) Extent of vaccination proportionate to the total population and certain failures and complications of vaccination. (c) Efficiency of the Emergency Hospital care and low Emergency Hospital mortality. (d) The small number of secondary cases. (e) The resulting sanitary improvement in the town.

Archives of Diagnosis, New York

October, VII, No. 4, pp. 301-400

29 Prognosis of Chronic Myocardial Insufficiency. H. L. Elsner, Syracuse.
30 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
31 Austin Flint Murmur—Its Mode of Production, Recognition and Importance. R. Abrahams, New York.
32 *Ptyalism—Danger Signal in Renivascular Disease. H. Stern, New York.
33 Diagnosis of Cancer of Common Duct. W. F. Cheney, San Francisco.
34 *An Aid in Early Diagnosis of Pulmonary Tuberculosis. A. F. Beifeld, Chicago.
35 Roentgen Examination of Gall-Bladder. W. H. Stewart, New York.
36 Gall-Stones Ejected Through Mouth. A. R. Carman, New York.
37 Posture and Kidney Disease. S. Epstein, New York.
38 Immediate Diagnosis of Birth Canal Lacerations. W. P. Manton, Detroit.
39 Symptoms and Signs in Diagnosis of Diseases of Chest. J. Epstein, New York.
40 Diagnosis of Carcinoma. M. Kahn, New York.

32. **Ptyalism Danger Signal in Renivascular Disease.**—Profuse salivation has been encountered by Stern in three cases of renivascular disease. The increased secretion of the saliva occurred first at a period when there existed no alarming symptoms on the part of the renal apparatus, when in fact the kidneys, as evidenced by metabolic and functional tests, and the determination of urinary solids, were performing their work in the same manner as months previously. It was thus clear that the ptyalism in these cases could not have been caused by a renal insufficiency, and that the blood-vessel disease itself should be held responsible for the salivary increase.

Stern says that the excessive production of saliva may last for from two to three days, or even from eight to ten days, and may then cease entirely for one or two weeks and reappear in a lesser degree (mostly); or the secretion may soon become less profuse, but continues in larger than normal amounts. Paralytic phenomena were not present in any one of the author's three cases prior to the establishment of ptyalism, but they made their appearance in two of them within a few months after the hypersecretion had supervened. In the third case very frequent (often after each meal or every drink of water) projectile vomiting, and other reflex manifestations of cerebral involvement set in soon after the advent of ptyalism. Inasmuch as such definite aggravation of the patient's condition was in none of the cases noted prior to the onset of the ptyalism Stern feels justified in denominating the appearance of the latter a danger signal in the course of the vascular deterioration process. A relationship between hypersalivation and hyperhydrosis did not exist in any case. While one of the patients inclined to perspire freely, the secretion of his sweat glands was neither profuse, nor was there any direct or inverse demonstrable analogy between the two secretions. The activity of the sweat glands of the remaining two patients seemed entirely normal.

34. **Early Diagnosis of Tuberculosis.**—As an aid in the eliciting of râles over the apex Beifeld (and others to whom he has communicated the finding) has had success with what he terms the whispered-voice method. It consists in having the patient whisper in an emphatic way, repeating "One, two, three" a number of times, following which he is instructed to inspire deeply. It is a frequent observation that when other methods fail, this procedure is successful in bringing out the significant apical râles.

Arkansas State Medical Society Journal, Little Rock

November, XI, No. 6, pp. 133-153

41 Spinal Analgesia. Report of Cases. R. A. Hilton, El Dorado.
42 Nasal Septum. R. Caldwell, Little Rock.
43 Metastatic Infections. B. D. Luck, Pine Bluff.
44 Injuries to Skull and Brain. Report of Cases. W. A. Snodgrass, Little Rock.

Boston Medical and Surgical Journal

November 26, CLXXI, No. 22, pp. 803-838

45 *Laboratory in the Study and Treatment of Crime. V. V. Anderson, Boston.
46 *Some Conditions that Influence the Mortality after Prostatectomy. A. L. Chute, Boston.
47 *Magnesium Sulphate in Purulent Cerebrospinal Streptococcic Meningitis. W. S. Bryant, New York.
48 Modern Treatment of Amebic Dysentery. E. F. Haines, Fort Leavenworth, Kan.
49 Intestinal Putrefaction with Convulsions. W. L. Thompson, New York.
50 Two Unusual Traumatic Cases. F. H. Lahey, Boston.
51 Case of Rotary Dislocation of Atlas. J. J. Morton, Jr., Boston.
52 Shaft of Radius as Pin Cushion. H. F. R. Watts, Dorchester.

45. **Laboratory in the Study and Treatment of Crime.**—Three hundred and fifty cases from the first and second criminal sessions of the municipal courts, as well as a few from the domestic relations courts of Boston are analyzed by Anderson. There were 140 men and 210 women. Of the men offenders, only 16 per cent. were mental defectives, while 35 per cent., or more than twice as many, were psychopaths. Of 62 cases men arrested for drunkenness 12.9 per cent. were mental defectives, while 40.3 per cent. were constitutional psychopaths. Of 21 individuals arrested for non-support, 9.5 per cent. were mental defectives, while 66⅔ per cent. were constitutional psychopaths.

Among the female offenders there were 40.95 per cent. mental defectives. There were 17.14 per cent. constitutional psychopaths among the females. Of the women arrested there were 105 cases of drunkenness. Of these, 43.8 per cent. were mental defectives, and 27.62 per cent. constitutional psychopaths. A study of those women arrested for offences against chastity shows that 48 per cent. were mental defectives, 28 per cent. were subnormal, while only 3.84 per cent. were psychopaths. In general Anderson's studies bear out the conclusions of other investigators in regard to women offenders, that they are differentiated from non-criminals by a lack of intellectual development; that mental deficiency is the problem here. In regard to criminals as a whole, however, they contradict certain reports, for the psychopath is almost as frequent as the defective and among men recidivists is of larger magnitude.

Anderson concludes that there is a type of individual passing through the courts who form a group of as serious proportions as the feeble-minded; who furnish as much if not more trouble to the social worker and probation officer than the defective, often suspected by the layman of being insane and diagnosed occasionally by experts as suffering from psychoses, or as mental defectives, defective delinquents, emotional defectives, moral imbeciles, and what not. These individuals when studied intensively by exact methods show no real defect in the intellectual field; they give no evidence of insanity, but seem to have certain anomalies of character, a certain lack of personality—adjustments, unstable, neurotic individuals, whose adaptation is inadequate and inefficient. They easily become disordered under the influence of emotion, alcohol, etc.

46. **Some Conditions that Influence the Mortality After Prostatectomy.**—The high mortality following prostatectomy, Chute says, is unnecessary and is to be avoided in two ways: First, by getting kidneys that are not doing their work into a condition in which they are acting efficiently; second, by avoiding injury to embarrassed or susceptible kidneys at the time of operation.

47. **Magnesium Sulphate in Cerebrospinal Meningitis.**—The diagnosis in Bryant's case—cerebrospinal meningitis—was established by symptoms and lumbar puncture. A decompression operation gave immediate relief from intracranial pressure. Toxemia was combated by magnesium sulphate, water and drainage. Cure of the cerebrospinal meningitis followed in a few days. Infection of the cranial wound followed contamination of the dressings. Result, a recurrence of toxemia together with encephalitis, with death on the 190 day from time of decompression operation. Cause of death, encephalitis and toxemia, not cerebrospinal meningitis.

Bulletin of Johns Hopkins Hospital, Baltimore

November, XXV, No. 285, pp. 323-350

53 *Experimental Production of Amebic Dysentery by Direct Inoculation into Cecum. A. W. Sellards and W. A. Baetjer, Baltimore.
54 Analysis of Case of Psychasthenia. H. Flournoy, Baltimore.
55 *Fibrinolysis in Chronic Hepatic Insufficiency. E. W. Goodpasture, Baltimore.
56 High Incision in Cesarean Section. W. L. Thompson, New York.
57 *Nitrogen Metabolism Before and After Splenectomy in Case of Pernicious Anemia. G. R. Minot, Baltimore.

53. **Production of Amebic Dysentery in Direct Inoculation Into Cecum.**—The inoculation of kittens per rectum, or the feeding of dysenteric stools rich in ameba was used by Sellards and Baetjer for the production of dysentery with widely varying degrees of success, but, in general, about 50 per cent. of infections was obtained. It has not been possible by either of these methods to propagate a strain of pathogenic ameba beyond a very limited number of passages. Inoculation of eight strains of dysentery, some of which were distinctly atypical cases, directly into the cecum, in ten kittens produced an infection in all instances. In some of the subinoculations considerable difficulty was experienced with bacterial septicemia.

Some of the factors bearing on the high rate of amebic infection following intracecal inoculations are as follows: 1. Absence of tendency to expulsion of injected material. 2. Optimum utilization of infective material and the avoidance in a large measure, of deleterious diluting agents. 3. Precision of the site of injection in the bowel. Definite evidence was obtained that the ameba are able to injure and penetrate the healthy mucosa. Unrestricted growth of bacteria in the intestine seems to be unfavorable to the entameba. A marked suppression of bacterial growth in the amebic lesion appears to be necessary for the best development of the pathogenic ameba. Animal inoculation by intracecal injection has been of assistance in the (1) propagation of a strain of ameba through a series of animals for a period of several months; (2) determination of the etiology of some obscure diarrheas; (3) study of the morphology of some atypical ameba of low virulence.

55. **Fibrinolysis in Chronic Hepatic Insufficiency.**—Specimens of blood from four cases of atrophic hepatic cirrhosis examined by Goodpasture possessed the property of completely digesting their clot within a few hours, at body temperature. Normal blood will not digest its clot for days or weeks. Dissolution of clot in the blood of cirrhosis cases, Goodpasture thinks, is due to an enzyme. Its activity is destroyed by heat, inhibited by normal serum and diminished in old plasma. The fibrinogen content of the blood in each case has been below normal. Hydremia was a constant feature. One patient exhibited a low phenoltetrachlorphthalein output. Goodpasture says that digestion of clots in vivo explains in part the hemorrhagic tendency present in these patients.

57. **Nitrogen in Case of Pernicious Anemia.**—In a case of pernicious anemia showing no improvement for three months, splenectomy was performed, after which the patient's general condition and blood-picture improved. Coincident with this improvement the urobilinogen disappeared from the urine, a more favorable nitrogen balance occurred, and a rise in per cent. of urea nitrogen, which previously had been below normal.

Colorado Medicine, Denver

November, XI, No. 11, pp. 403-444

58 Treatment of Weak and Flat Feet. G. B. Packard, Denver.
59 Chronic Polyarthritis in Children. S. F. Jones, Denver.
60 Chronic Intestinal Indigestion in Children; Its Rôle in Production of Epilepsy. J. W. Amesse, Denver.
61 Contagious Diseases in Denver During 1913. C. E. Low, Denver.
62 Inoculation Against Typhoid in National Guard of Colorado. W. A. Jolley, Boulder.
63 Value of Organization in Medical Profession. I. Knott, Montrose.
64 Closure of Vesicovaginal Fistula which had Followed Hysterectomy. C. M. Stewart, Glenwood Springs.
65 Problems of Teaching Dispensary. J. Shapiro, Boulder.

Florida Medical Association Journal, Jacksonville

November, I, No. 5, pp. 129-160

66 Surgical and Conservative Treatment of Joint Tuberculosis. R. Duffy, Tampa.
67 Diagnosis and Treatment of Pulmonary Tuberculosis. R. H. McGinnis, Jacksonville.
68 Renal Tuberculosis. J. K. Simpson, Jacksonville.
69 Laboratory Diagnosis of Tuberculosis. H. Hanson, Jacksonville.

Indiana State Medical Association Journal, Fort Wayne

November, VII, No. 11, pp. 507-550

70 Goiter: Differential Diagnosis. R. B. Wetherill, Lafayette.
71 Pathology of Goiter. L. T. Rawles, Fort Wayne.
72 *Goiter: Selection and Preparation of Surgical Risks. G. K. Throckmorton, Lafayette.
73 Goiter; Surgical Treatment. H. H. Martin, Laporte.

72. Abstracted in THE JOURNAL, Oct. 24, 1914, p. 1499.

Journal of Abnormal Psychology, Boston

October-November, IX, No. 4, pp. 217-295

74 *Mental Tests of Dementia. B. Hart and C. Spearman, London.
75 *Criticism of Psychoanalysis. J. V. Haberman, New York.

74. **Mental Tests of Dementia.**—The experimental results obtained by Hart and Spearman, they say, are incompatible with the current view that dementia consists in large "defects," "gaps," "hyperfunctions" or "ataxias" in mental power, such as "disturbed association," "faulty judgment," "weak power of conception," "poverty of ideas," "loss of memory," etc. The authors believe that the method of mental tests appears to be already capable of accurately determining any person's general level of intellectual power. But before accurately measuring the impairment (especially in slight cases) one should know how great this power was in health.

75. **Criticism of Psychanalysis.**—Haberman sums up his criticism of the so-called Freudian psychanalysis as follows: Let us have some carefully and scientifically worked-out studies given to us—not "statements" erroneously called "studies" which go on without the slightest attempt to substantiate the principles employed. Let us have some wholesome and conservative investigation of such mechanisms as Verdrängung, of the carrying over of "affect" experienced in association with an incident, on concepts not originally associated with sucl. "affect" (Hellpach makes an attempt to explain this mechanism without Freud's aid of the "unconscious"). Or again let us see to what degree personality may be laid bare by judicious anamnestic probing,

"anamnestic analysis," Haberman has called it to differentiate it from the sexuo-analysis of the Freudians, incorrectly termed psychanalysis. This is a type of inquiry always essayed to some extent by psychiatrists and neurologists, but now more carefully and thoroughly undertaken because of the renewed interest in the psyche and the psychic—a probing without the use of symbolism or interpretation or translation. Let the psychanalyst in such a procedure show how much of the past makes up mind-tendencies of the present, to what degree past "affects" can produce negative influence in the present, to what degree the sexual (as found—not interpreted) plays a part, whether the incident causing such "affects" can drop out of memory, be forgotten, and the "affect" still live on (Ranschburg, for instance, one of the foremost authorities on memory studies to-day, denies that it can), how symptoms may be explained without symbolism (for surely even the Freudist will admit that some can, by suggestion, for instance, and imitation), or if he needs his symbolism, first give some adequate proof of it, or show how it may be scientifically employed.

Journal of Infectious Diseases, Chicago

November, XV, No. 3, pp. 417-614

76 Metabolism of Saprophytic Human Tubercle Bacilli in Plain, Dextrose, Mannite, and Glycerin Broths. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
77 Metabolism of Certain Rapidly Growing Human Tubercle Bacilli. I. In Broth Free from Lipoids and Fatty Substances. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
78 Id. II. In Modified Uschinsky Medium. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
79 *Id. III. In Media with Inorganic Salts as Sources of Nitrogen. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
80 *Metabolism of Lepra Bacillus, Grass Bacillus and Smegma Bacillus in Plain, Dextrose, Mannite and Glycerin Broths. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
81 Occurrence of Soluble Lipase in Broth Cultures of Tubercle Bacilli and Other Acid-Fast Bacteria. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
82 Relative Activity of Soluble Lipase and Lipase Liberated During Autolysis of Certain Rapidly Growing Tubercle Bacilli. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
83 Specificity and Thermostability of Lipase Developed During Growth of Rapidly Growing Tubercle Bacillus in Media of Varied Composition. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
84 Comparison of Curves of Lipolytic Activity and Proteolysis of Certain Rapidly Growing Human Tubercle Bacilli in Media of Varied Composition. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
85 Comparison of Curves of Lipolytic Activity and Proteolysis of Certain Acid-Fast Bacilli in Nutrient Broths. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
86 *Effect of Cholesterol on Phagocytosis. K. Dewey and F. Nuzum, Chicago.
87 Formation of Chlamydospores in Sporothrix Schenckii. D. J. Davis, Chicago.
88 *Experimental Study of Influence of Iodin and Iodids on Absorption of Granulation Tissue and Fat-Free Tubercle Bacilli. E. F. Hirsch, Chicago.
89 Antigenic Properties of Glycoproteins. C. H. Elliott, Chicago.
90 *Therapeutic Value of Copper and Its Distribution in Tuberculous Organism. H. J. Corper, Chicago.
91 *Relation Between Allergic Intracutaneous Reaction and Symptoms of Anaphylaxis. G. L. Meigs, Chicago.
92 Protein Poison of Tonsil. W. H. Burmeister, Chicago.
93 Histologic Differentiation by Means of Anilin Stains in Association with Regressive Mordanting, with Special Reference to Elastic Tissue. H. F. Harris, Atlanta, Ga.
94 *Effect of Gentian Violet on Bacillus Tetani, Tetanus Toxin and Certain Laboratory Animals. I. C. Hall and L. B. Taber, Berkeley, Cal.
95 Production of Acid by Bacillus Coli Group. W. W. Browne, Providence, R. I.

79. **Metabolism of Tubercle Bacilli in Simple Mediums.**—A rapidly growing strain of human tubercle bacilli (597) was grown by the authors in a medium of known and very simple composition, consisting essentially of diammonium-hydrogen-phosphate, as a combined source of nitrogen and phosphorus, and dextrose, mannite, and glycerin, respectively, as sources of carbon. At the end of two weeks, 4.2 mg. of nitrogen, that is to say, 10 per cent. of the total nitrogen of the uninoculated medium, has been so changed by the growth of this organism that it cannot be recovered as ammonia. This loss of ammonia is most plausibly explained on the assumption that it has been built up into the bodies of the newly developed bacteria.

At the end of four weeks, between 40 and 50 per cent. of this lost nitrogen has reappeared in the clear medium underlying the pellicle of the tubercle bacilli in such a form that it can again be determined as ammonia. The period during which the disappearance of nitrogen from the culture fluid is the greatest corresponds with the period of maximum vegetative activity in the culture. Coincidently with the reappearance of this nitrogen, which can be detected as ammonia in solution, there are evidences of a cessation of vegetative activity. This strongly suggests that the reappearance of this ammonia is associated with a certain amount of autolysis of the bodies of the bacteria.

80. **Metabolism of Lepra, Grass and Smegma Bacilli.**—The authors found that the metabolism of the smegma and grass bacilli resembles that of the rapidly-growing, human tubercle bacilli, described previously, in two important particulars; neither dextrose, mannite, nor glycerin, exhibits any appreciable sparing action for the protein constituents of the broth, the amounts of ammonia produced being practically the same in these media as in plain broth; and their cultures present a gradual increase in proteolysis to a maximum which is followed by a clearly-defined recession of the metabolism indicated by a gradual decrease in the ammonia content. The lepra bacillus does not present this metabolic phenomenon. This would suggest that this bacillus was entirely distinct in its cultural relationships from the grass and smegma baciili, which follow more closely the metabolism of the tubercle bacillus.

86. **Effect of Cholesterol on Phagocytosis.**—It appears from Dewey and Nuzum's experiments that cholesterol in colloidal suspension, injected into guinea-pigs and rabbits, has a depressing effect on phagocytosis. They believe that this action is probably chiefly on the leukocytes; for the opsonic index of normal serum with the washed leukocytes of an animal injected with cholesterol is lower than that of the same serum with washed normal leukocytes, and the index of the serum containing cholesterol with the washed leukocytes of the same blood shows a reduction in phagocytosis more than twice as great as that of such serum with washed normal leukocytes. The fall of the total phagocytic index, that is, of the serum of the animal injected with cholesterol acting on its own washed leukocytes, is 65 per cent. after one hour and 43 per cent. seventy-two hours after one small dose and 62 per cent. twenty-four hours after one large dose of cholesterol.

The chief difference in the results from injections of small and large amounts of cholesterol and of doses of higher and lower concentration seems to be, as far as the range of these experiments indicates, a more marked immediate effect from the large dose and from that of higher concentration. This inhibitory action of cholesterol, the authors suggests, is perhaps due to the presence of free cholesterol in the blood. Simultaneous injections of immunizing doses of streptococci with cholesterol result in an opsonic curve which is almost identical with that of the serum of an animal injected only with cholesterol. This apparent neutralizing effect of cholesterol on the formation of antibodies is marked when cholesterol is injected twenty-four hours after the animal has received the immunizing dose.

88. **Effect of Iodin on Absorption.**—The use of iodin and iodids in facilitating the absorption of necrotic material and organization of tuberculous and other granulation tissues, Hirsch says, has no experimental proof. The daily administration of potassium iodid does not hasten the removal of foreign substances, like tubercle bacilli, by stimulating the phagocytic properties of the endothelial cells. The presence of free iodin in such areas may influence the process only by favoring an inflammatory reaction, if the amount of iodin is sufficient, but has no effect in promoting absorption. Iodized fat-free tubercle bacilli are absorbed no faster than are the non-iodized.

90. **Copper in Tuberculosis.**—Corper's experiments showed that copper in simple salt form (sulphate, acetate, oleate and copper amino-acid mixture prepared from hydrolyzed egg albumin), injected intramuscularly into normal and tuberculous guinea-pigs in total amounts from 0.75 mg. up to

about 19.0 mg. for about two to one hundred days, enters the animal organism and is found mainly and in largest amounts in the liver, in small amounts in the kidneys, in traces in the spleen, lungs and blood, and not at all in the tuberculous lymph-glands and pus. After cessation of injections the copper slowly but gradually decreases in amount in the liver.

Copper, in simple salt form, injected intramuscularly in guinea-pigs, in amounts varying from 2.7 to 22.1 mg. during a period of thirteen to thirty-four days, previous to (nineteen days), coincident with (two days before), or after (eleven days) infection with tubercle bacilli, has appreciable effect on the progress of the tuberculosis, as indicated by the lesions present after death.

Copper, in simple salt form fed to rabbits in amounts up to 1,380 mg. of copper, during a period of ninety-seven days, and injected (copper sulphate and copper amino-acids) intramuscularly into rabbits, in amounts up to 55.1 mg. of copper, during periods of ninety days, enters the blood and is found mainly and in largest amounts in the liver, in small amounts in the kidneys, in traces in the lungs and blood and not at all in either the tuberculous or normal eyes. Copper, in the form of copper sulphate, fed to rabbits in amounts of 1 to 2 c.c. of a 1 per cent. solution daily for up to one hundred days, begun five days before infection, and copper in simple salt form injected intramuscularly into rabbits in amounts of 12 to 42.9 mg. copper, for thirty-seven days, begun on the eleventh day after the infection, has no appreciable effect on the course of tuberculosis of the eye as indicated by the development of the disease in the eye.

Colloidal copper, prepared electrolytically by Bredig's method injected intravenously into normal and tuberculous rabbits in amounts totalling 9.6 mg. from four to twelve days, is found mainly and in largest amounts in the liver, in smaller amounts in the kidneys, in traces in the lungs and not in the normal or in the tuberculous eyes. Copper, in the form of copper amino-acid mixture, does not differ greatly in its systemic (tested in mice with the lethal dose intraperitoneally and intramuscularly, about 0.05 to 0.1 mg. copper per mouse of 10 gm.) and local (tested intracutaneously in guinea-pigs) toxicity from that of copper sulphate when equal copper contents were compared. Locally, however, a difference existed in the fact that the copper amino-acid mixture produced a hemorrhagic necrotic lesion, whereas the copper sulphate produced a single necrosis. The local non-necrotizing concentration proved to be 0.01 per cent. copper, while 0.001 per cent. copper still produced a slight duration.

Copper, in the form of copper oleate (50 per cent.) in lanolin by inunction, and copper amino-acid mixture applied to the skins of guinea-pigs, is absorbed, but only to a slight extent and with uncertainty, as shown by the presence of small amounts of copper in the liver.

91. **Relation of Cutaneous Allergy to Anaphylaxis.**—On the ground of the conception that the anaphylactic reactions are caused by substances in close relation to the parenteral splitting of protein, Meigs' experiments speak in favor of the hypothesis that the intracutaneous reaction of the sensitized animal is not caused by the same split-products which lead to the general symptoms of anaphylaxis on the reinjection of the allergen into the blood-stream.

94. **Toxicity and Antitetanic Action of Gentian Violet.**—According to Hall and Taber gentian violet distinctly inhibits the growth of the tetanus bacillus when 1 part saturated solution is added to 10,000 of dextrose agar. In dextrose broth, however, exposure for twenty-four hours at 37 C., at this concentration, has no perceptible effect on subcultures; the cultures failed from broth containing 1 part in 100. The organisms are not destroyed, however, as can be shown by animal inoculations. One part saturated solution in ten of broth destroys the virulence of a toxic culture. At this concentration more than 99 per cent. of the toxin is destroyed by contact at 37 C. for twenty-four hours. One part in 100 has no perceptible effect. The necessity of using more than 1 per cent. saturated solution for devitalization precludes the employment of gentian violet for the practical purpose attempted through excessive soiling of laboratory ware. Within the limits tested, the toxin appears to be destroyed under practically the same conditions as the spores. Guinea-pigs and rabbits withstand considerable injections of gentian violet in 0.85 per cent. NaCl. Distilled water solutions appear to be more toxic than those in salt solution and subcutaneous injections less than intravenous injections.

Lancet-Clinic, Cincinnati

November 21, CXII, No. 21, pp. 549-574

96 *Public and Profession: A Criticism. D. Hecht, Chicago.
97 Purpura Rheumatica Associated with Genito-Urinary Lesions. A. W. Nelson, Cincinnati.
98 Surgical Authority. F. Fee, Cincinnati.

96. Also published in the *Medical Record*, Nov. 21, 1914, and abstracted in THE JOURNAL, November 21, p. 1877.

Laryngoscope, St. Louis

October, XXIV, No. 10, pp. 837-900

99 Deaf Child—Plea for Cooperation. M. A. Goldstein, St. Louis.
100 Anatomy of Tympanic Cavity. R. Butler, Philadelphia.
101 Vaccine Therapy in Ear Disease. V. Dabney, Washington, D. C.
102 Tuberculosis of Parotid Gland. T. E. Carmody, Denver.
103 Affections of Lingual Tonsil and Their Treatment. C. C. Biedert, Philadelphia.
104 *An Uncommon Case of Nasal Hemorrhage. J. A. Thompson, Cincinnati.

104. **Nasal Hemorrhage.**—There were two unusual features in Thompson's case. The right inferior turbinate body was all angiomatous tissue and when it started to bleed the hemorrhage could be controlled only by the complete removal of the tumor. The second unusual feature was the method of cure, a submucous resection. The septal cartilage was found to be softened and it was believed that the condition of the cartilage prevented a cure of the inflammation in the overlying mucosa.

Medical Record, New York

November 28, LXXXVI, No. 22, pp. 909-950

105 Radium Beta Rays. R. Abbe, New York.
106 *Imbedded Radium Tubes in Treatment of Cancer. W. J. Morton, New York.
107 Microscopic Traumatic Lesions of Mucosa Found in Some Cases of Appendicitis. C. Savini, New York.
108 Case of Myxedema Allied to Infective Exhaustive Group. E. F. Leonard, Chicago.
109 Annular, Serpiginous, Bullous Eruption Complicating Vaccination. C. A. Simpson, Washington, D. C.
110 Case of Acute Myelogenous Leukemia. W. B. Stone and A. S. Fay, Schenectady.
111 The Load Our Students Bear. W. F. Waugh, Chicago.
112 Case of Retroperitoneal and Extensive Subcutaneous Emphysema Following Intratracheal Anesthesia, with Recovery. S. D. Ehrlich, New York.

106. **Imbedded Radium Tubes in Treatment of Cancer.**—Morton makes a further report of a case of a spindle cell sarcoma of the humerus remaining cured nine years after radium treatment. He also reports a case of primary carcinoma of the breast of the size of a large egg into which he inserted a tube containing 10 milligrams of pure radium bromid of an activity, of 1,800,000. The tube was left in place sixteen hours. A severe radium necrosis ensued, very slow to heal. Some time later on it was thought best on account of the slow healing of the wound simply to remove surgically the mammary gland involved. The patient at this date (1914) seven years later has never shown any signs of recurrence of the disease and remains in perfect health.

New Jersey Medical Society Journal, Orange

November, XI, No. 11, pp. 545-596

113 Hospitals and Their Superintendents. G. K. Dickinson, Jersey City.
114 Hospital and Physician. E. J. Ill, Newark.
115 Efficiency of Hospital Service. E. Marvel, Atlantic City.
116 Hospital and Its Nurses. J. C. McCoy, Paterson.
117 *Standing-Order Evil in Hospitals from Surgical Viewpoint. F. H. Glazebrook, Morristown.

117. **Standing-Order Evil in Hospitals.**—The standing order is regarded by Glazebrook as a decided evil in the hospital management of operative cases, and in his opinion should be eliminated. He advises that the administration of alkaloid drugs especially morphin and atropin, commonly used in connection with operative cases, should be more

cautiously administered, and never given unless the indication for their use is positive, whereas the routine preanesthetic administration of morphin and atropin is, he says, an unsound and unscientific practice, the advantages claimed for the method not being enough to offset the risk involved.

New York Medical Journal

November 28, C, No. 22, pp. 1049-1096

118 Phlegmons of Upper Respiratory Tract. Report of Cases. J. O. Roe, Rochester.
119 Intestinal Stasis. B. Robinson, New York.
120 Convulsions During Pertussis. L. Fischer, New York.
121 Sciatic Pains. A. M. Forbes, Montreal.
122 Epithelioma Varium. W. P. Cunningham, New York.
123 *Parageusia and Its Treatment. T. F. Reilly, New York.
124 Voice Fatigue in Singers and Speakers. I. W. Voorhees, New York.
125 Post Partum Hemorrhage and Treatment. J. Gardiner, Toledo, O.
126 A Stamp Bracelet Aid to Auscultatory Blood-Pressure Test. F. A. Faught, Philadelphia.
127 Determination of Exceptional Development in Children. M. P. E. Groszmann, Plainfield, N. J.
128 Garcia Fernandez. W. B. Jennings, Scarsdale.

123. **Parageusia and Its Treatment.**—As a result of a year's close questioning of patients on the subject, Reilly is convinced that persistent bad taste in the mouth is a symptom of much importance; that it is always an expression of a serious toxemia, and is frequently of great service in the early diagnosis of disease. In the early stages of chronic interstitial nephritis the patient complains of the bad taste only on arising in the morning and says that it disappears after breakfast. As the disease advances, often, but not always, it reappears later in the day, in some cases, particularly of the cardiorenal type, it reappears after exercise or at the close of the day. In one case, the ingestion of a meat meal caused a taste described as rubberlike to appear regularly two hours after eating and to persist for about two hours. In general, the prognosis seems to be worse the more constantly the taste is present.

In many instances bad taste was the only symptom the patient complained of, and Reilly suggests as a working rule that when any one, particularly a person of 45 years or upward, complains of persistent bad taste, a blood-pressure examination be made at once. This sign often precedes the appearance of other symptoms by a month or more. Next in frequency Reilly found this complaint associated with gallstones and cholecystitis. During an attack of cholelithiasis a large number of patients complain of bad taste, which is generally ascribed to coincident gastric disturbance or to the morphin given to relieve pain. In most instances, the taste is described as bitter, like gall. During the diminution of the attack, namely, after the colic has subsided while yet the pain and soreness remain, the taste is sometimes described as dry, but quite often the "gall" taste remains. In a few cases, the taste was described as being like musty eggs.

New York State Journal of Medicine

November, XIV, No. 11, pp. 513-553

129 Correction of Nasal Deformities by Mechanical Replacement and Transplantation of Bone. W. W. Carter, New York.
130 Recent Developments in Otology. T. J. Harris, New York.
131 Clinical Irregularities of Heart Beat. A. Lambert, New York.
132 Various Methods of Blood Transfusion and Its Value. J. A. Hartwell, New York.
133 Removal of Facial Blemishes and Epitheliomata. E. W. Ruggles, Rochester.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

September, XXXVII, No. 1, pp. 1-198

1 *Clinical Aspects of Syphilis of Nervous System in Light of Wassermann Reaction and Treatment with Neosalvarsan. H. Head and E. G. Fearnsides.
2 *Comparison of Lesions of Syphilis and "Parasyphilis" Together with Evidence in Favor of Identity of these Two Conditions. J. McIntosh and P. Fildes.

1. **Syphilis in Light of Wassermann Reaction and Treatment with Neosalvarsan.**—All manifestations of syphilis of the central nervous system, according to Head and Fearnsides, are consequent on the direct activity of the *Spirocheta pallida*. The clinical picture evoked depends on the situation of this activity and on the susceptibility of the tissues. When the lesion lies mainly within the essential structures of the central nervous system, both neuroglia and the nerve elements participate in the tissue reaction. This results in the death and degeneration of certain systems of cells and fibers; to these secondary consequences may be due the greater part of the clinical manifestations. The more closely clinical signs and symptoms point to pathologic changes in the meninges and vessels, the more certainly will the disease yield to adequate treatment. On the other hand, the more nearly the clinical manifestations point to one or more foci of syphilitic activity within the parenchymatous tissue of the central nervous system, the less will they yield to the present methods of antisyphilitic treatment.

In syphilis meningovascularis the character of the Wassermann reaction in the cerebrospinal fluid depends on whether the spinal or basal meninges are affected. Should clinical evidence point to affection of the contents of the spinal canal, and occasionally when the basal meninges alone appear to be affected, the reaction is positive in the cerebrospinal fluid. When, however, the disease seems to be limited to the intracranial contents, the reaction in the cerebrospinal fluid tends to be negative or weakly positive. In cases of syphilis centralis, such as dementia paralytica, tabes dorsalis, muscular atrophy and primary optic atrophy, the Wassermann reaction in the cerebrospinal fluid is strongly positive so long as the disease is active. When, however, it has come to an end, leaving behind it a greater or less amount of irreparable degeneration, the Wassermann reaction may diminish in strength or even become negative in the cerebrospinal fluid. Under treatment with salvarsan or neosalvarsan, the Wassermann reaction in cases of meningovascular syphilis, if at first positive, will usually become negative in the cerebrospinal fluid within six months. On the other hand, the more the clinical manifestations point to syphilis centralis the less will they yield to any of the present forms of antisyphilitic treatment. No complete diagnosis or prognosis can be made until the patient has been under observation and treatment for at least six months, and the cerebrospinal fluid has been examined systematically from time to time.

Whatever the situation and nature of the lesion which is responsible for the clinical manifestations, some secondary degeneration must almost certainly result. Many of the signs and symptoms in cases of syphilitic disease of the central nervous system are therefore not amenable to any form of antisyphilitic treatment. It is, therefore, most important to make the diagnosis of syphilis early in the disease of the central nervous system, so that treatment may be employed before the advent of these secondary changes.

2. **Comparison of Lesions of Syphilis and "Parasyphilis."**—The progressive character of "parasyphilitic" lesions, McIntosh and Fildes claim, is due to a continuation of the syphilitic process in spite of treatment, and not to a progressive primary degeneration of the neurons. The degeneration passively extends to the limits of the neuron, but does not actively spread to other neurons. Treatment is ineffective in resolving the inflammation because drugs in the bloodstream are unable to pass from the capillaries into the nervous substance in order to destroy the spirochetes. If by some method salvarsan succeeds in penetrating into the brain or cord, it produces such toxic symptoms as make its use impossible.

British Medical Journal, London

November 14, II, No. 2811, pp. 821-864

3 Borderland of Disease. G. Rankin.
4 *Present Knowledge of Thyroid. M. Mamourian.
5 Nicolle and Blaizot's Vaccine in Treatment of Gonorrhea. R. Donaldson.
6 *Blood-Platelets in Treatment of Disease. L. Dimond.
7 Insects and War: Ticks. A. E. Shipley.
8 Epidemic Poliomyelitis. A. A. Pim.
9 Treatment of Certain Cases of Appendix Abscess. C. M. Page.
10 Some Practical Considerations in Diagnosis and Treatment of Abscess of Cerebellum. W. Milligan.

11 Treatment of Vesical Papillomata by High-Frequency Current. A. Fullerton.
12 Operative Treatment of Abdominal Aneurysm. W. I. de Courcy Wheeler.

4. **Present Knowledge of Thyroid.**—A 4-year-old typical cretin was treated with thyroid extract for about three years without intermission. He came under Mamourian's care in January, 1910, and he continued the treatment for over six months, prescribing 20 grains of the dry extract per day. Neither his physical nor mental condition underwent any appreciable change. Mamourian then decided to try grafting. He had a sheep killed in the hospital while the patient was being anesthetized, removed the thyroid, placed it in hot saline and after incising it in several places planted it into the child's omentum, which was scarified with a needle. The patient made wonderful headway. Four years after the operation the boy has entirely lost his repulsive countenance, and looks pleasant and intelligent. He can read and write, tell the time and recognize coinage. He has grown to the extent of 10 inches in four years. Since the operation he has very occasionally had a 5-grain tablet owing to a stutter which he develops at times, and which, according to the observation of the boy's mother, completely disappears when a small dose of extract is given.

6. **Blood-Platelets in Treatment of Disease.**—Though good results are obtained from small doses of platelets and their plasma, such as from 1 to 5 c.c., Dimond has in particular cases, according to the indications, by means of 20 c.c. Record syringes, administered as much as 30 to 40 c.c. directly into the connective tissues under the skin between the shoulder blades. During an experience of many hundreds of injections, varying from 1 c.c. to 40 c.c., he has never yet seen any untoward result apart from a slight reddening of the skin for a few centimeters around the puncture, which clears up in from twenty-four to thirty-six hours. The patients have never complained of any pain as an immediate or after result of the injections, and in the majority of cases the hyperemia of the skin is simply accompanied by a slight sensation of itching.

When vaccines are administered either with the platelets or after sensitization by means of the platelets and their plasma, more definite local signs are the result, but never so marked or so intense as when the vaccine alone is injected. Having treated with platelets a large number of acute and chronic pulmonary conditions, as well as numerous cases of the secondary infection in phthisis, Dimond has found that for the organisms noted below the most suitable time for isolation of the platelets is, as a rule, as follows: *Diplococcus pneumoniae*, platelets withdrawn fifth day after injection. *Micrococcus catarrhalis*, platelets withdrawn third day after injection. Friedlander's bacillus platelets, withdrawn eighth day after injection. *Bacillus influenzae*, platelets withdrawn second day after injection. *Streptococcus pyogenes*, platelets withdrawn third day after injection. *Bacillus septus*, platelets withdrawn sixth day after injection. *Bacillus pertussis*, platelets withdrawn third day after injection. Regular estimations of the opsonic index in certain of these cases have shown that when the platelets are withdrawn after the above interval following the vaccine injection the best immunizing response is obtained.

Edinburgh Medical Journal

November, XIII, No. 5, pp. 361-440

13 *Four Cases of Tuberculosis Treated with Béraneck's Tuberculin. R. A. Fleming.
14 Passing of Vesalius. G. M. Cullen.
15 Simple Form of Dressing Sterilizer. C. W. Cathcart.
16 Case of Intracranial Traumatic Arteriovenous Aneurysm Affecting Both Eyes. W. George and A. Miles.

13. **Cases Treated with Béraneck's Tuberculin.**—The first case cited by Fleming was one in which there were innumerable caseous cervical glands, so extensive as to preclude the possibility of their being removed by operation in the usual way, and Roentgen-ray examination demonstrated that the glands extended into the mediastinum. The second case was a tuberculous pleurisy with effusion, which had persistently resisted other treatment, and in which the swinging temperature, rising sometimes to 100 F., sometimes as high as 101 F., fell at once after the first dose of tuberculin, and did not rise again above normal. The third case was that of a boy aged 13½, suffering from tuberculous glands in the abdomen, attended by a great deal of abdominal discomfort. He had no pyrexia, but his increase in weight, and the general improvement in the condition of the abdomen which followed treatment, were alike remarkable.

The fourth case is interesting because, although under the effect of tuberculin, the temperature suddenly ceased to swing; there was no improvement in the patient's condition as regards the tuberculous lesion. While under tuberculin treatment, the boy started what was proved pathologically to be an extensive miliary tuberculosis and died of tuberculous meningitis. Small doses of Béraneck's tuberculin, given during the period when the meningitic symptoms were most marked, did not have any effect either in reducing temperature or in alleviating symptoms.

Glasgow Medical Journal

November, LXXXII, No. 5, pp. 321-399

17 Six Cases of Disease of Lower Abdominal Organs, Some of Which Simulated Tumors of the Uterus and Adnexa. J. M. M. Kerr.
18 Two Cases Illustrative of Splenic Anemia and Splenectomy. W. R. Jack and D. T. C. Frew.
19 Practical Points in Abdominal Surgery. T. K. Dalziel.

Indian Medical Gazette, Calcutta

October, XLIX, No. 10, pp. 377-416

20 Meaning of Insanity. G. F. W. Ewens.
21 Comparison between Mental Processes in Sane and in Insane. O. A. R. Berkeley-Hill.
22 Prevention of Mental and Nervous Diseases. A. Overbeck-Wright.
23 Ganja as Cause of Insanity and Crime in Bengal. A. S. M. Peebles and H. V. Mann.

Journal of Tropical Medicine and Hygiene, London

November 2, XVII, No. 21, pp. 321-336

24 Meteorology of Malaria. M. D. O'Connell.
25 Case of Leishmania Tropica with Fatal Termination. A. R. Neligan.
26 Babesia or Piroplasma. A. J. Chalmers and R. G. Archibald.
27 Useful Prescription in Chronic Malaria with Enlarged Spleen. J. Cantlie.

Lancet, London

November 7, II, No. 4758, pp. 1079-1132

28 Recent Advances in Science and Their Bearing on Medicine and Surgery. R. Ross.
29 Wounded in War: Some Surgical Lessons. D. Power.
30 Intratracheal Administration of Chloroform. W. D. Mart.
31 Ether Anesthesia by Intratracheal Method. Report of Forty-Nine Cases. R. L. Jones.
32 *Accessory Spleen Causing Acute Attacks of Abdominal Pain. R. C. Alexander and A. Romanes.
33 Action of Drugs on Plants. J. C. Bose.

32. **Accessory Spleen Causing Acute Attacks of Abdominal Pain.**—In the case which Alexander and Romanes observed the patient was a young woman aged 25, who three years previously had had her right kidney removed for calculous pyonephrosis. A year previously to her admission to the hospital she was suffering from an attack of tonsillitis, and while her medical attendant was treating her for that condition she complained of abdominal pain. Alexander, who saw her at that time, discovered a mass about the size of a golf ball in the left upper quadrant of the abdomen. This mass could be freely moved about all over the upper abdomen and was somewhat tender to touch. The only other clinical facts of note were a greatly enlarged left kidney, possibly a compensatory hypertrophy, and a considerable degree of albuminuria. A few days later another examination was made, and this time the lump could not be felt until the patient sat up in bed, when it was easily palpated. She was sent to the surgeon who had previously removed her kidney, but owing to her general health being below par, he was unwilling to operate. She returned home and improved in general health, but was subject to frequent attacks of pain of a dragging nature in the upper abdomen, this pain having no relation to the taking of food. The pain was usually rendered worse when the patient stooped, and was unaccompanied by other symptoms. These attacks of pain occurred

almost daily, coming on suddenly, lasting for one or two hours, then passing off and leaving her quite well.

In August, 1912, with the exception of the enlargement of the left kidney, nothing abnormal was detected on examination. The spleen was normal in size. Her general health was good and the amount of albumin in the urine very small. The tentative diagnosis of mesenteric or omental cyst was made, and as the patient said that the pain was exceedingly severe when it occurred and that it made her miserable, under a general anesthetic an incision was made through the upper part of the left rectus muscle. The viscera appeared normal and no trace of any tumor could be found till the hand was passed up under the diaphragm on the left side and a rounded mass was felt. This proved to be an accessory spleen about the size of a small tangerine orange situated at the lowest part of the great omentum. There were several large vessels running toward it. The omentum was ligated and the splenculus, which was entirely surrounded by omentum, was removed. The stump of the omentum was carefully stitched to prevent adhesions forming and the abdomen closed. No other accessory spleens were seen. Convalescence was uninterrupted and the patient had no recurrence of symptoms. Microscopically, its structure resembled that of the spleen, except that the lymphoid follicles were not so well developed and that there was considerable fibrosis of the whole organ with recent and old hemorrhages. The authors regard that cause of the pain to have been congestion of the viscus from torsion of the omentum obstructing the return of the blood-flow. There was no necrosis visible and there had been apparently no arterial obstruction.

Presse Médicale, Paris

October 29, XXII, No. 73, pp. 657-664

34 Improvised Arrangement for Treatment with Electricity in Military Hospitals. (Moyen tres simple d'électrisation pour hôpitaux militaires.) H. Bordier.

November 5, No. 74, pp. 665-672

35 Prophylaxis of Epidemics during Wartime. (Conseils pratiques aux soldats et aux populations.) A. Martinet. (Proplrylaxie et traitement du choléra.) L. Lagane.

36 The Wounded and the Base Hospitals. (Nos blessés et les formations sanitaires d'arrière.) F. Jayle. Commenced in No. 73.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 3, XLIV, No. 40, pp. 1249-1280

37 Biologic Variability as Factor in Myopia. (Die Variabilität als Grundlage einer neuen Myopietheorie.) A. Steiger.

38 Compulsory Insurance of the Working Classes. (La loi des assurances et sur son application.) Pometta.

October 10, No. 41, pp. 1281-1312

39 Heat and Vital Energy. (Die Wärme im Energiehaushalt des Organismus.) W. R. Hess.

40 Protective Ferments in Eye Diseases. (Vorkommen von Schutzfermenten bei Augenerkrankungen.) C. A. Hegner.

Deutsche medizinische Wochenschrift, Berlin

October 22, XL, No. 43, pp. 1881-1896

41 Infected Wounds. (Wundinfektionskrankheiten.) G. Jochmann.

42 Care and Treatment of the Feet on Marches. (Die Marschkrankheiten, ihre Entstehung, Verhütung und Behandlung.) P. Schuster.

43 Apparatus for Local Anesthesia on Large Scale. (Feld- und Lazarettapparat für Lokalanästhesie in Massenanwendung.) P. Kuhn.

44 Lint, etc., as Substitutes for Ordinary Dressings. (Ersatz von Verbandmitteln im Kriege.) Momburg.

45 *Gap in Motor Nerve Bridged by Stretch of Sensory Nerve from same Trophic Center. (Neue Methode der Transplantation bei Nervendefekten.) F. Cahen.

45. **Transplantation of Nerve.**—In the case reported by Cahen a gap of 12 cm. was left in the ulnar nerve after removal of a neurofibroma. The patient was a woman of 48 and the gap was bridged with the medial cutaneous nerve of the forearm. It was easily separated from the ulnar nerve in front of the axillary vein, and divided on a level with the peripheral stump of the ulnar nerve. The central stump of the cutaneous was then joined by a perineural suture to the peripheral end of the ulnar nerve. The central end of the ulnar nerve was then sutured to the trunk of the cutaneous nerve. The functional use of the nerve became restored surprisingly soon. By the fifth week the interossei muscles were functioning, and within six months the hand was being used practically normally. Sensation returned on the ulnar side of the fourth finger. Light pressure on the little finger still causes a slight tingling to run up the forearm.

Deutsche Zeitschrift für Chirurgie, Leipzig

August, CXXX, Nos. 5-6, pp. 433-640

46 Pathologic Hernia Content. (Zur Pathologie des Bruchinhaltes.) S. Pollag.

47 *Importance of Positive Luetin Reaction in Diagnosis of Surgical Affections. W. Keppler and E. Herzberg.

48 *Splenectomy in Hemolytic Jaundice. (Zur chirurgischen Therapie des hämolytischen Ikterus.) P. Graf.

49 *Dermoid Tumors in the Mediastinum. W. Pohl.

50 *Mechanical Predisposition of the Apex of the Lung to Disease. (Experimentelle Untersuchungen über die mechanische Disposition der Lungenspitze für Tuberkulose.) K. Iwasaki.

51 Formation of Gas in Open Abdominal Cavity. (Gasbildung in der freien Bauchhöhle.) H. Fründ.

52 *Accessory Thyroid at Base of Tongue. (Die Zungenstruma.) R. Asch.

53 Cystic Disease of the Kidney Simulating Rupture. N. Paus.

47. **Luetin in Differentiation of Surgical Processes.**—A positive reaction testifies with practical certainty that the affection in question is of syphilitic origin, according to the experiences related in this article. If there is no pronounced reaction, the test should be repeated a week or ten days later; it may then prove positive. Negative findings by no means exclude syphilis. The reaction is more constantly positive in the third phase of syphilis, and especially when there are manifest surgical lesions. In these conditions the luetin test was found more reliable than the Wassermann.

48. **Splenectomy in Jaundice from Excessive Destruction of Blood.**—Graf comments on the familial character of this disease, and the absence of detectable bile pigment in the urine while it is present in the blood. The second generation feels the effects, generally, more severely than the first generation known to be affected. Some are born with the jaundiced tint; others develop it later. Hemolytic jaundice differs from Banti's disease chiefly by its familial character and the exceptional fragility of the red corpuscles. In Banti's disease, further, the jaundice stage is comparatively brief. Graf reports the case of a family with thirteen living children in which the father and six of the seven younger children present the typical syndrome of hemolytic icterus. The others have escaped it, and the jaundice was never very pronounced and in some has retrogressed. The enlargement of the spleen preceded the jaundice by several months, and the general health fluctuated with the size of the spleen. The two girls who seemed most seriously affected were treated by splenectomy with great benefit. The spleen was removed also from a man of 38 with typical hemolytic jaundice. The family history in this case was not known, but the jaundice had been noticed for nine years. The results a year after the splenectomy in these cases confirm the advantages of this procedure in hemolytic jaundice in adults. In the girl of 12 the reds have increased until they now number almost seven millions, and time alone will tell how the child is going to bear this polycythemia. Splenectomy therefore should not be advised for a child unless forced by severe disturbances. In the above-mentioned family the physical development of one youth of 17 was below par, and in the last few months he has had pneumonia and articular rheumatism. On this account splenectomy was advised, but the family refused.

49. **Mediastinal Dermoids.**—Pohl summarizes six additional cases found in the literature since Dangschat's compilation in 1903. The list includes Ceelen's case in which cancer had developed in the dermoid tumor. Pohl then reports the fifty-second case. It was a typical teratoma found in the anterior mediastinum of an otherwise healthy girl of 7. She died about a year after a contusion of the chest during play, followed by various respiration and heart disturbances from the injury to the teratoma.

50. **Mechanical Predisposition to Apical Disease.**—Iwasaki's extensive experimental research failed to confirm the alleged anatomic and pathologic bases on which Freund founded his operation of chondrectomy and Bacmeister his induced stenosis of the upper aperture.

52. **Lingual Goiter.**—Asch removed a small tumor from the base of the tongue which the patient, a healthy woman of 28 with three healthy children, first noticed two weeks before. It caused no disturbance except some interference with breathing as she lay in bed. What seemed to be the thyroid gland could be palpated deep in the neck, so no danger was anticipated from removal of this tumor even if it proved an accessory thyroid gland. The microscope revealed that the tumor was made up of both thyroid and parathyroid tissue. The woman felt well for a fortnight and then developed postoperative tetany and myxedema in a pronounced form, and by the end of six months she presented typical cachexia thyreopriva and parathyreopriva. She failed to take the thyroid treatment that had been advised, but the disturbances gradually subsided spontaneously. At present, four years since the operation, there are no symptoms except a slight myxedematous condition. The literature on lingual goiter is reviewed, with 133 bibliographic references. Among the 95 cases on record are 35 in which signs of thyroid insufficiency had been noticed before the operation (21) or necropsy (14). Only 12 per cent. of the total cases were in males. These tumors are always on the median line of the tongue, and generally fluctuate in size. In one case iodin treatment caused the tumor to increase in size while the general health suffered. Palpation of the thyroid region is not always very reliable, and in Asch's case had probably given misleading findings. In 9 per cent. of the total 95 cases of lingual struma, myxedema followed its removal. It would be better not to remove the whole of the tumor in case of doubt. In 4 cases another operation was required later; in a few other cases the tumor returned but subsided spontaneously later.

Medizinische Klinik, Berlin

November 1, X, No. 44, pp. 1633-1654

54 *Dysentery. G. Singer.
55 *Symptoms and Treatment of Tetanus. F. Blumenthal.
56 Exanthematous Typhus. (Flecktyphus.) A. Frisch.
57 *Genital Hemorrhage in Newly Born Girl Babies; Ten Cases. (Genitalblutungen neugeborener Mädchen.) E. Zacharias.
58 Treatment of Arteriosclerosis and Obesity. C. H. Wedekind.
59 *Action of Epinephrin. (Zur Frage der Adrenalinwirkung.) J. Löwy.

54. **Dysentery.**—In the course of this discussion of the present status of dysentery Singer emphasizes that it must be managed on surgical principles. That is, we must appreciate that there is a large area of pathologic surface, and that the task is to keep this surface well drained and prevent accumulation of secretions at any point. The diarrhea is Nature's effort to accomplish all this, and we must aid this by copious flushing out of the bowel. He uses a soft two-way tube for this, and can thus flush the bowel with three or more liters, without discommoding the patient, until the fluid comes away clear. He commends bolus alba or charcoal as an important aid. In conclusion, he warns that the bacilli are liable to settle down and hibernate, as it were, for years. This is probably the true cause of chronic ulcerative colitis in some cases.

55. **Tetanus.**—Blumenthal, in commenting on the importance of an early diagnosis of tetanus, says that pains and twitching in the muscles around a wound liable to be infected with tetanus germs should give the alarm at once and call for preventive injection of antitetanus serum. These slight pains in the region are usually ascribed to rheumatism. We must constantly be impressed with the fact that trismus is by no means the first sign of tetanus, although it is of course the first unequivocal sign.

57. **Genital Hemorrhage in the Newly Born.**—Zacharias reviews the literature on this subject and reports ten cases from Zweifel's service at Leipzig. The hemorrhage does not seem to have any practical importance, and it subsides spontaneously after a day or so, although in some of the cases on record there was scant oozing of blood from the vagina for four to eight days. No symptoms accompanied the genital hemorrhage. Halban ascribes it to hyperemia of the uterus induced by the action of some hormone from the placenta, but Zacharias remarks that it must be more than a casual coincidence that his ten cases were all in unusually large children. At any rate, he adds, the unusual size of the child predisposes to the phenomenon. These ten cases represented 2.5 per cent. of the 400 girl babies systematically examined to detect the tendency.

59. **Dangerous Action of Epinephrin in Addison's Disease.**—In Löwy's case of advanced Addison's disease an intravenous injection of epinephrin caused sweating over the entire body and then sudden arrest of both the heart and the respiration. Only after half an hour's vigorous artificial respiration was the patient revived. In another case there were signs merely of irritation of the left sympathetic. An intravenous injection of epinephrin was followed by intense tremor and pallor, and the left side of the face alone was bedewed with sweat.

Münchener medizinische Wochenschrift, Berlin

October 27, LXI, No. 43, pp. 2125-2160

60 Specificity of the Protective Ferments. (Experimentelle Untersuchungen über die Spezifität der Abwehrfermente mit Hilfe der optischen Methode.) H. Jaffé and E. Pribram.
61 The Casein-Splitting Ferments. (Bedeutung der kaseinspaltenden Fermente.) M. Kastan.
62 *Cardiac Asthma in a Child. P. Rohmer.
63 *Restriction of Fluids in Treatment of Edema not Traceable to Heart or Kidney Disease. (Durstkur bei Oedemen nicht-renal-kardialer Natur.) W. Nonnenbruch.
64 *Roentgen Treatment of Exophthalmic Goiter. (Zur Behandlung der Basedowschen Krankheit mittels Röntgenbestrahlung.) R. Sielmann.
65 Isolated Perichondritis of the Ensiform Process. E. Ruediger.
66 Diagnosis of Tuberculosis in Children. K. E. Ranke. Commenced in No. 42.
67 Gunshot Wounds of the Intestines. (Schussverletzungen des Darmes.) E. Enderlen.
68 *Tetanus. F. Voelcker and K. W. Eunike.
69 Experiences with the Wounded. (Die ersten Kriegsverletzungen im Vereinslazarett Schwenningen a. N.) K. Kolb.
70 Experiences of a Surgeon on the Firing Line. (Erlebnisse und Beobachtungen im Felde.) C. Thomalla.
71 Aviator's Arrow Pierces Shoulder and Peritoneum. (Tödliche Verletzung durch Fliegerpfeil.) Grünbaum.
72 *The Supply of Dressings. (Verbandstoffe sparen!) D. Krecke.
73 Mental Disease in the War. (Geisteskrankheiten im Kriege.) W. Weygandt. Commenced in No. 42.
74 Orthopedics for the Wounded. (Die Orthopädie im Kriege.) F. Lange. Commenced in No. 42.

62. **Cardiac Asthma in a Child.**—As arteriosclerosis is so rare in children, cardiac asthma is correspondingly rare, but Rohmer reports a typical case in a girl of 6 subject to recurring articular rheumatism. There was also heart disease and a tendency to dropsy when the child was first seen. The failing compensation was restored by suitable treatment and the ascites was absorbed. The fifth week, however, severe dyspnea developed like a bolt from a clear sky; the contrast was striking between the extreme difficulty in breathing and the negative physical findings. After a few days pulmonary edema ensued, speedily fatal. The necropsy findings confirmed the explanation of the syndrome as true cardiac asthma.

63. **Restriction of Fluids in Treatment of Edema Not Due to Heart or Kidney Disease.**—Nonnenbruch's experience has confirmed the assumption that the edema with kidney disease is the result of factors outside the kidneys. In a recent case of lymphatic leukemia in a man of 53 with edema in the left leg for six months and of both for three weeks, he kept down the intake of fluids. The output of water was increased materially by not allowing the patient more than from 700 to 1,100 c.c. of fluids during the twenty-four hours, and finally not over 600 c.c. With this the urine totaled systematically from 1,020 c.c. to 1,500 c.c. The edema subsided and the patient felt immeasurably relieved and was able to walk once more. In a case of pleurisy with effusion in a man of 25 similar benefit followed reduction of the intake of fluid to 500 or 600 c.c.; the amount of urine increased and the specific gravity ran up from 1.020 to 1.028. The area of dulness grew smaller and there was considerable subjective relief. In two other cases the benefit was also striking when the intake of fluids was restricted to 500 c.c. or less. In one patient the edema accompanied a cancer in the stomach; the other patient, a woman of 43, had an ovarian cyst, extreme ascites and pleurisy. Twelve liters of ascitic fluid were

drawn and the intake of fluids restricted for two weeks to about 400 c.c. When more was taken, the weight rapidly increased and was brought down to normal only by keeping the intake at 200 or 300 c.c. for several days. This patient died soon after of pulmonary edema. These cases amply confirm the beneficial influence of restricting the intake of fluids in dropsy from any cause.

64. **Roentgen Treatment of Exophthalmic Goiter.**—Sielmann has given twenty-one Basedow patients systematic Roentgen treatment in the last five years. The total duration of treatment was from six weeks to six months, and he never allowed the exposures to reach the point of inducing a dermatitis. His experience was so favorable that he urges this as the routine method of treatment after failure of medical measures. If this fails, then an operation should be considered. It may prove useful likewise to supplement operative treatment if this does not realize a complete cure. Only one of his patients failed to show benefit from the Roentgen treatment and required an operation. One patient was a young man with palpitations for a period of eight years, developing into pronounced typical Basedow's disease, was remarkably improved by four exposures, and by the end of three months, interspersed with three weeks' pauses, he was practically cured. The neck was 4 cm. smaller in circumference and the pulse, formerly 120 or 160, was permanently 80 and the exophthalmos and tremor had entirely disappeared. Another case teaches that an operation on the thyroid gland is not always a complete cure. The improvement for a few months after the Roentgen treatment yielded to a stormy recurrence of the syndrome and operative treatment was applied. This was followed by apparently a complete cure for a year, but then the whole syndrome returned again, but was banished anew by a few Roentgen exposures. Another lesson from this case is that the ovaries, the pituitary body or other glands evidently cooperate in bringing on Basedow's disease, and thyroidectomy does not remove all the cause.

68. **Tetanus.**—Voelcker reports encouraging success with a combination of antitetanus serum, subcutaneous injection of 5 c.c. of a 2 per cent. solution of phenol, plus local cauterization of the wound with concentrated phenol. This does not produce an eschar at once, to impede its action on the tissues, so it burrows deep and effectually sterilizes. He reports four cases of tetanus after shrapnel wounds in which this method of treatment was successfully applied. The trismus came on from the ninth to the fourteenth day after the injury. He gave the subcutaneous injections once or twice a day at first, increasing to five or six a day.——Eunike reports ten cases of tetanus among the 3,000 wounded in his charge at Ludwigshafen. The incubation was from nine to twenty-one days, and five of the men died. He warns that the early symptoms are liable to be ascribed to rheumatism or be disregarded, and thus precious time is lost.

72. **Losses in the War.**—Krecke's text is the necessity for economy in dressings for wounds, and he suggests various fiber-woven materials that might be used instead of cotton for dressings. To emphasize the need for economy, he remarks that losses up to 50 per cent. must be reckoned with in this war. In the Franco-Prussian war the losses averaged 18 per cent.; in the Manchurian campaign the Russian loss was 29 per cent. and the Japanese 40.9 per cent., but in the present war, he continues, "With 2,000,000 fighting, we must look for losses of 1,000,000. How large a proportion of this will be composed of wounded we have no means of estimating, but it is certainly not exaggerating to say that we can reckon with a half million wounded in the course of the first year of the war."

Wiener klinische Wochenschrift, Vienna

October 29, XXVII, No. 44, pp. 1399-1442. Wagner von Jauregg Number.

75 *Chronic Veronal Poisoning. (Ueber chronischen Veronalismus.) O. Glaser.
76 *Psychic Changes after Resuscitation after Hanging. (Psychische Veränderungen bei wiederbelebten Erhängten.) H. Herschmann.
77 Traumatic Paradoxic Cerebral Embolism. (Paradoxe Hirnembolie als Unfallsfolge.) M. Infeld.
78 Progressive Paralysis under Tuberculin Treatment; Ten Cases. (Ueber zehn Fälle von geheilter Paralysis progressiva nach Behandlung mit Tuberkulin.) A. Joachim.
79 Paralysis of the Musculocutaneous Nerve; Two Cases. H. Müller.
80 Hysteria. (Zur Hysteriefrage.) E. Raimann.
81 *Etiology of Nervous and Mental Diseases in Private and Hospital Practice. (Statistisches zur Aetiologie der Nerven- und Geisteskrankheiten.) E. Redlich.
82 Dermographism. R. Reznicek.
83 *Tardy Tetanus of Gastric Origin. L. E. Wexberg.
84 Care of the Wounded. (Verwundetenfürsorge im Kriege.) v. Eiselsberg. Commenced in No. 43.

75. **Chronic Veronal Poisoning.**—Glaser summarizes from the literature nine cases of chronic veronal poisoning and adds a tenth case to the list. The drug had been prescribed for a temporary condition and the patient had continued its use for several months. Even when the single doses are small, the continued use in this way is liable to entail serious symptoms. The central nervous system is affected by it, and predominantly the cerebellum and the vestibular portion of the cochlea. The gastro-intestinal tract and vascular apparatus do not seem to be affected except as the drug depresses the action of the bowels and kidneys. This, with the euphoria and the habituation to small doses, tend to magnify the toxic influence of the veronal. The experiences related warn of the necessity for care in prescribing veronal for patients with a tendency to nervous or mental asthenia, and in any event to see that the drug is not taken continuously.

76. **Psychic Changes After Resuscitation of the Hanged.**—This number of the *Wochenschrift* is dedicated to von Wagner in honor of the twenty-fifth anniversary of his incumbency of the chair of nervous and mental diseases at the University of Vienna. He published about that time two cases in which women had been resuscitated after apparent death by hanging. Herschmann here reviews the similar cases on record and describes four unpublished cases. The upset of the circulation in the brain by the hanging causes a reactional functional hyperemia with concomitant physical-chemical phenomena which, in a number of cases, either completely cured a preceding psychic affection or aggravated it to complete mania. Redlich has witnessed a similar complete cure of extreme melancholia after recovery from a suicidal dose (3 or 4 gm.) of tincture of opium. Pötzl has observed a similar transformation after sunstroke in several instances.

81. **Etiology of Nervous and Mental Disease.**—Redlich compares 6,000 cases from his private practice with the statistics from a number of hospitals in Vienna and Berlin. In 14 per cent. of his 6,000 private cases syphilis could be incriminated. Multiple sclerosis was much more frequent in women than in men, while tabes affected 364 men to only 37 women. General paresis affected 39.7 of the men and only 4.4 of the women among his 890 patients with mental affections. In the hospital patients there was not this discrepancy, the figures being here 23.7 per cent. of the men and 11 per cent. of the women. The large percentage of syphilogenous affections and the evidence of the predominance of arteriosclerosis of the cerebral vessels, are interesting facts demonstrated in his private practice as compared with the hospital patients. In his 59 exophthalmic goiter cases, the women outnumbered the men 2.2 to 1, but of the 145 neurasthenics, there were 100 men to each 41.7 women.

83. **Tetany of Gastric Origin.**—Wexberg's patient was a woman of 56 who since the age of 37 had had more or less "stomach trouble" and at 48 attacks of tetany came on and recurred during the following eight years, at intervals of from three to six weeks. Wexberg's diagnosis was true tetany of gastric origin, and he gave the woman hydrochloric acid and pepsin to supplement the deficient gastric digestion, the test breakfast having shown apparently total lack of acid and pepsin in the stomach content. This treatment restored clinical conditions to normal; all the stomach symptoms subsided and with them the signs of tetany, including Trousseau's phenomenon. For the first time in eight years there have been no spasms for more than two months to date. The literature on the subject of gastric tetany is reviewed.

Zeitschrift für klinische Medizin, Berlin

LXXX, Nos. 5-6, pp. 381-550. Last indexed August 8, p. 518.

85 Metabolism of Albumin in Experimental Pancreas Diabetes. II. (Eiweissstoffwechsel beim experimentel Pankreasdiabetes.) A. Galambos and B. Tausz.
86 *Cholesterin Esters in the Urine. (Ausscheidung anisotropen Fettes mit dem Harn in Zusammenhang mit dessen Ablagerung in den Organen.) A. Lawrynowicz.
87 Blood-Pressure with Arteriosclerosis and Nephritis. (Blut- und Pulsdruck bei Arteriosklerose und Nephritis.) W. Janowski.
88 *Classification of Uremia. (Zur Klinik und Einteilung der Urämie.) E. Reiss.
89 Influence of Secretions of Ductless Glands on Purin Metabolism. Fleischmann and Salecker.
90 Accessory Murmurs Heard over the Aorta. (Nebengeräusche über der Aorta.) Külbs.
91 Metastatic Obstruction of the Esophagus by False Membrane in Fatal Case of Diphtheria. W. Ceelen.
92 Double Arterial Wave with Aortic Insufficiency. (Anakroter Puls an der Arteria carotis und Arteria subclavia bei Aorteninsuffizienz.) M. Ludin.
93 Elimination of Creatin and Creatinin in Diabetes and Nephritis. D. Lampert.
94 Myeloma. H. v. Bomhard.
95 Intracranial Murmurs. (Kranielle Geräusche.) H. Köster.

86. Reviewed in THE JOURNAL, Oct. 31, 1914, p. 1615.

88. **Classification of Uremia.**—Reiss presents evidence to prove that uremia occurs in three principal types, with mixed forms. The first type, asthenic uremia, is characterized by drowsiness and apathy, physical fatigue and liability to sudden death from heart failure. The elimination of salt, nitrogen, etc., by the kidneys is defective. In the blood the osmotic pressure and the residual nitrogen are abnormally high. The second type is that with a tendency to convulsions and paralysis of speech and limbs. The external secretion of the kidneys is normal and likewise the blood findings in this form of uremia. The third type is characterized by psychic disturbances, confusion, hallucinations, visual and other delusions and profound coma. These conditions are generally transient. With this type also there does not seem to be any retention of normal waste products, but the arteries of the brain show signs of sclerosis in these cases, and this possibly favors the trouble. Mixed forms with one or the other of these types predominating are most common. Pure examples of the first and third types are comparatively rare. The trouble in uremia seems to be mainly an inability to dilute properly the juices and fluids in the body. The normal relations between the water and the dissolved substances are upset. The blood-serum shows the albumin content constantly within or above normal range, even when by intake of large amounts of fluid and venesection efforts are being made to dilute it.

Zeitschrift für Urologie, Berlin

August, VIII, No. 8, pp. 609-698

96 *Diagnosis and Treatment of Movable Kidney. (Wanderniere.) W. V. Simons.
97 Large Ureter Stone. P. A. Specklin.
98 *Primary Cancer of the Ureter. O. M. Chiari.

September, No. 9, pp. 699-738

99 Pyelitis in Pregnant Women. K. Franz.
100 Factors Influencing Secretion-Pressure in the Kidneys. (Experimentelle Beobachtungen über den Sekretiondruck der Nieren.) Hammesfahr.
101 The Normal Bladder and Its Sphincters; Changes Following Suprapubic Prostatectomy. A. Hyman (N. Y.).

96. **Wandering Kidney.**—This long article from Küttner's service at Breslau is based on 48 cases. Operative treatment was applied in 25; on both sides in 4. There was ptosis of other organs in 12 and trauma was incriminated in 12; 22 of the 40 women had borne children and there was intermittent hydronephrosis in 9 cases, and 18 of the patients had had attacks of local pain. One patient died within a year of uremia and one succumbed to hemophilic hemorrhage after the operation, and another was saved only by nephrectomy. Recent data from 16 of the 19 nephrectomized patients show that 4 were cured, 5 improved, 5 unimproved and 2 have died; from 8 of the 17 given conservative treatment, only 3 are cured and 2 improved; 3 were not benefited, and one of the improved has to wear a bandage. Küttner suspends the kidney from the twelfth rib, passing one or more suture threads through the parenchyma of the superior pole and suturing the capsule with silk to adjacent muscle or fascia; sometimes one drain; bed-rest for eighteen or twenty days.

98. **Cancer of the Ureter.**—From a woman of 54 Chiari successfully removed 15 cm. of the left ureter containing a papillary cancer, the eighth he has found on record. He compares his case with others of cancer of the ureter, the literature showing seventeen cases of primary malignant disease in the ureter. The diagnosis in his case was rendered practically certain by catheterization of the ureter, showing the bleeding obstruction.

Zentralblatt für Chirurgie, Leipsic

October 31, XLI, No. 44, pp. 1633-1656

102 *Economy in Dressings. (Ueber Sparsamkeit beim Gebrauch der Verbandstoffe.) F. Franke.

102. **Economy with Dressings.**—Franke protests against too frequent change of dressings, and says that the dressing material often is not utilized to the utmost. Unless there is danger that the scar may be disfiguring, he does not change the dressings as early as some do, seldom before the ninth day after amputation of the breast, for example, which he always drains now since he had disagreeable experiences in a few cases with retention of blood. He insists on having the dressings applied in his service in such a way that they can be unwound and placed to soak till next day in the already used lye in the laundry. Then they are washed in fresh lye, rinsed, dried and sterilized. By this means they can be used over again, six or seven times or more. Gauze sponges are used over again in the same way—eight layers are overcast to make a sponge; when they grow too ravelly, a number of them are wrapped in a square of mull and used for a dressing pad. The outer bandage can be made of thicker mull or cambric and lasts indefinitely. The dressings can thus be utilized to the last scrap, and end by doing good service in the form of sterilized lint. He has never had any harm result from this economy in dressings, no infection among the washerwomen. The ironing is done by convalescents.

Zentralblatt für Gynäkologie, Leipsic

October 31, XXXVIII, No. 44, pp. 1369-1392

103 Importance of Distinguishing the Lower Segment of the Uterus; the Uterus Isthmus. (Das untere Uterinsegment.) J. Veit and P. Zweifel.

Zentralblatt für innere Medizin, Leipsic

October 31, XXXV, No. 44, pp. 969-984

104 Staphylococcus Erysipelas. F. Reiche.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 9, XXXV, No. 95, pp. 993-1008

105 Cholesterinemia in Pulmonary Tuberculosis. A. Farini.

August 11, No. 96, pp. 1009-1016

106 Fecal Concrements Cause of Appendicitis; Nine Cases. C. Scandola.

September 6, No. 106, pp. 1121-1136

107 Vaccination against Small-Pox. C. S. Materazzi.

October 25, No. 120, pp. 1845-1860

108 Early Syphilitic Phlebitis; Two Cases. V. Fisichella.

Pediatria, Naples

November, XXII, No. 11, pp. 803-880

109 Blue Spot in Children. (Frequenza delle macchie mongoloidi nella popolazione infantile di Cagliari.) O. Cozzolino.
110 Relations between Alexin Content of the Blood Serum and Phenomena of Anaphylaxis in Tuberculous Children. S. Maggiore.
111 Kala-Azar in Children in Naples District. (Nuovi casi di Leishmaniosi infantile osservati a Napoli e dintorni.) G. Gatti.
112 *Diagnostic Importance of Enlarged Glands in Axilla with Glandular Tuberculosis in Infants. (Il segno di Hochsinger nella diagnosi di adenopatia tracheo-bronchiale nel lattante.) A. Corica.

112. **Diagnostic Importance of Enlarged Glands in Axilla with Glandular Tuberculosis in Infants.**—Corica found the skin tuberculin reaction pronounced in thirty-three of forty infants with enlarged glands in the axilla. This evidence of glandular disease—to which Hochsinger first called attention—is thus an important sign of tuberculous tracheobronchial glandular trouble.

Policlinico, Rome

November 1, XXI, No. 44, pp. 1537-1568

113 Sterilization of Intestine against Cholera; Post-Mortem Experiments. C. Fermi and U. Cano.

October 15, Surgical Section, XXI, No. 10, pp. 461-508

114 Separation of Lower Epiphysis of the Femur and Operative Treatment. (Il distacco epifisario inferiore del femore e la sua cura cruenta.) O. Uffreduzzi.

115 Hernia of the Appendix. (Dell'appendicocele comune e dell' appendicocele semplice con sacco in parte aderente.) R. Mosti.

116 Interposition of Fat or other Substance in Operating on Joints, etc. (Di una eccezionale indicazione alla impiombatura per la guarigione di una lesione suppurativa della tiroide e dell'uso della impiombatura nella moderna chirurgia.) I. Scalone. Commenced in No. 9 and continued.

Riforma Medica, Naples

August 29, XXX, No. 35, pp. 953-980

117 *Quantitative Test for Stercobilin in Feces. (Urobilina nelle feci.) G. Gastaldi.

118 Glycosuria and Diabetes in Railroad Employes. C. Rubino.

September 2, No. 36, pp. 981-1008

119 Virulence of Micrococcus of Undulant Fever. G. Lucibelli.

120 Direct Visual Inspection of Abdominal Cavity and Chest. (Laparotorascopia diretta.) A. Roccavilla.

121 Blood Findings in Acute and Chronic Benzol Poisoning. P. Secchi.

122 Kala-Azar. P. Verrienti and P. Russi.

September 12, No. 37, pp. 1009-1036

123 Nutrient Intravenous and Subcutaneous Injections of Sugar According to Kausch; Experimental Research. L. Eustachio.

117. **Stercobilin in the Stools.**—Gastaldi remarks that exact findings are not attainable even with the most complicated usual tests for determination of bile pigment in the feces, while the simple method he uses is accurate enough for practical purposes. He dissolves 0.01 c.c. from the twenty-four hours stool in 50 c.c. of 95 per cent. alcohol and adds 1 c.c. of Obermeyer's reagent, stirring it well for twenty minutes. It is then filtered, evaporated down to 10 c.c. and the Nencki reagent is added until there is a pronounced green fluorescence. The amount of dilution required for this is the quantitative index. At the same time he examines the urine in the same way, stirring 0.01 c.c. from the twenty-four hours urine into 10 c.c. of chloroform; sets it aside to settle, decants the urine, and adds 5 or 6 drops of fuming nitric acid. He then adds alcohol to the chloroform extract thus obtained until the fluid becomes limpid; evaporates down to 10 c.c. and then dilutes with the Nencki reagent until the green fluorescence develops. He tabulates the findings with these tests applied parallel to both urine and stool. In normal conditions the average dilution required is 1:350 and never more than 1:500. In cirrhosis of the liver, fluorescence was apparent even with a dilution of 1:1,300 in one case and the range in five cases was from 500 to 1,300. In seven cases of pernicious anemia the range was from 1:1,000 to 1:4,250. (The Obermeyer reagent is the familiar 2 per thousand solution of ferric chlorid in concentrated hydrochloric acid. By the Nencki reagent Gastaldi probably means the test for indol with nitric acid plus a little nitrous acid.)

Brazil-Medico, Rio de Janeiro

October 1, XXVIII, No. 37, pp. 349-356

124 Case of Cancerous Meningo-Myelitis. A. de Carvalho.

October 8, No. 38, pp. 357-364

125 Acromegaly and Tabes. A. de Castro.

Russky Vrach, Petrograd

XIII, No. 26, pp. 901-932

126 *Abderhalden's Test for Serodiagnosis. G. G. Tara and N. P. Kochneva.

127 Poisonous Action of Extracts of Organs. L. G. Gutman.

128 Antigonococcus Serum. V. Berezoff.

129 *Prognosis in Pneumococcus Meningitis. A. R. Krever.

130 *The Chemical Action of Chymosin. V. M. Sudakova. Commenced in No. 25.

126. **Serodiagnosis.**—Tara and Kochneva compared the dialysis and the optic methods for the Abderhalden test, their findings showing that placenta tissue is not digested by the serum of normal persons, but is digested by that of nephritics. The serum of a pregnant woman digests placenta, carcinoma and lung tissue. The serum in progressive paralysis digests brain tissue, which is not digested by serum from patients with functional psychoses or neuroses. Placenta extract digests placenta and lung tissue, but not that of cancer.

129. **Prognosis in Pneumococcus Meningitis.**—Krever distinguishes two forms of pneumococcus meningitis which differ according to the place of origin, and which give a different prognosis. One form is a pneumococcus meningitis as the result or complication of some other pneumococcus infection, such as croupous pneumonia, otitis media, sinusitis, or endocarditis, etc. This form gives a decidedly unfavorable prognosis. The other form of meningitis is caused by pneumococcus infection from the nasopharynx, when the micro-organisms invade the blood. This form has a comparatively favorable prognosis. The difference in the prognosis is due, Krever thinks, to the varying virulence of the virus which is more active in the former type, leading to a purulent meningitis which usually proves fatal. Coming from the nasopharynx, the virulence of the micro-organisms is somewhat attenuated, causing only a serofibrinous or hemorrhagic inflammation with a better outlook.

130. **The Chemical Action of the Milk-Curdling Ferment of the Gastric Juice.**—This ferment, chymosin, commonly occurs together with the proteolytic ferment, and produces a sediment from solutions of peptonized products. Sudakova studied the chemistry of this ferment experimentally and came to the following conclusions: During the action of chymosin on solutions of peptones there occurs a change of their ability to bind acids and alkalies. These changes depend on the degree of acidity of the medium. Greater acidity of the medium (0.3 per cent.) diminishes the binding ability of the peptones; a lesser acidity (0.04 per cent. and 0.14 per cent.) increases same. The amount of the ferment apparently plays some rôle, but there does not seem to be any direct correlation between the amount of the ferment and the change in the properties of the proteins to bind acids and alkalies.

Hospitalstidende, Copenhagen

November 4, LVII, No. 44, pp. 1321-1344

131 Artificial Heliotherapy for Lupus and Bone and Joint Tuberculosis. A. Reyn and N. P. Ernst. Commenced in No. 43.

Hygiea, Stockholm

LXXVI, No. 19, pp. 1073-1135

132 Connection between the Pituitary Body and Diabetes Insipidus. (Om diabetes insipidus och dess förhållande till hypofysen.) G. Kahlmeter.

133 Present Status of Cultivation of Tissues Outside of the Body. (Om odling av vävnader in vitro.) F. Henschen.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXXV, No. 11, pp. 1249-1368

134 Atypical Reactions to Alcohol and Their Medicolegal Importance. R. Vogt.

135 Diagnostic Measures in Sensory Disturbances of Tabes. (De sensible forstyrrelser i tabes: maal for ledsansen.) G. H. Monrad-Krohn.

136 Mushroom Poisoning. (Fluesopforgiftning.) K. Motzfeldt.

137 Vocal Fremitus with Pleural Effusion. (Et tilfælde av sterk stemmevibration ved pleuraekssudat.) S. Høyer.

138 Treatment of Empyema of the Pleura; Twenty-One Cases. S. Widerøe.

139 *Gummatous Myocarditis. (Gummøs hjertesyfilis.) F. Harbitz.

139. **Gummatous Myocarditis.**—In Harbitz' case a man of 38 who had contracted syphilis fifteen years before, suddenly developed dyspnea and cyanosis and died the fourth day. Necropsy disclosed adherent pericardium and total obstruction by gummas of the superior vena cava for a distance of 1 cm. The lumen was completely obliterated. In this segment and also in the wall of the right auricle and left ventricle there were several gummatous formations. There were also syphilitic changes in the small branches of the coronary artery, in the pleura and the adjacent lung tissue. This is the third case of gumma in the myocardium ever encountered at the Pathologic Institute at Christiania. Syphilis as a direct cause of death, as in this case, is comparatively rare.

Ugeskrift for Læger, Copenhagen

October 29, LXXVI, No. 44, pp. 1893-1930

140 Age at Onset of Menstruation. (I hvilken Alder indtræder Menstruationen hos Kvinder her i Landet?) O. Helms.

141 Spread of Diphtheria by Milk. (Difteritisepidemi foranlediget ved smittebærende Mælk.) V. Holm.